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VERATRUM VIRIDE; ITS VALUE IN SOME CONDITIONS OF TOXEMIA.¹

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In the medicine of to-day veratrum viride finds but limited employment. The traditions and writings of the "Fathers" are yet sufficiently regarded, however, outside of the medical centers to maintain for this drug a place in the armamentarium of most country practitioners. But, since the advent of pilocarpine, the teachers of materia medica and of therapeutics have given veratrum viride such scant consideration that the physicians of the past fifteen years, particularly in cities, are practically unacquainted with the virtues of this potent medicinal agent. Of four drug-stores in Clifton and Mt. Auburn to which a prescription for Norwood's tincture was sent, a short time since, only one had a supply of the preparation. At the others it was said that there had never before been a call for it.

Perhaps, however, the object of this endeavor may be better pursued by eschewing verbiage and furnishing instead a series of clinical illustrations in the form of case reports. The six cases to follow are all of peritonitis, without exception undoubtedly having origin in appendicitis. The number does not, by any means, exhaust all cases of the same character coming under observation, but six cases afford, in the newspaper vernacular, "sufficient evidence of good faith," and the others are reserved as "not necessarily for publication." It is presumed that the cases are germane to the caption of the paper, and that it is not requisite here to argue that a state of toxemia exists with peritonitis.

Case I.—W. B., American, married, aged forty-two years, was seen June 30, 1876. Had pain in right iliac region, radiating over abdomen, of a paroxysmal nature, pulse 100, temperature, 100.2° F. Tenderness and tumefaction in right iliac region. Had suffered slight pain, with tenderness upon deep pressure, for several days, together with constipation. Free action of the bowels was obtained through the administration of calomel and salts and the use of enemas. The abdomen was generally tender to pressure, but soft, except in the right iliac region. There was pain, increasing during the night, and hypodermatic injections of morphine were given with relief. July 1st, general abdominal pain, distention and hardness; pulse, 120; temperature, 104° F.; delirium. Diagnosis,

perityphlitis and general peritonitis. Treatment, veratrum viride, eight drops, every two hours, and hot turpentine stupes. The veratrum was continued in eight-drop doses until free perspiration and nausea occurred, together with a lowering of the pulse-rate, when the dose was reduced to four drops every two or three hours. Free diaphoresis took place during the night. By the morning of July 2d the pulse was reduced to 68; temperature 100.5° F.; the abdomen was less tumid and tender, there was still nausea, the skin was moist, and, while the patient was somnolent, there was no delirium. In fact all the evidences of resolution were at hand, which progressed steadily until the 8th, when he was discharged convalescent. There was still some induration in the right iliac region, with slight tenderness. He never had any further abdominal trouble and is alive and well to-day.

Case II.—G. K., American, widower, aged twenty-seven years, was seized with severe pain over the abdomen the night of April 21, 1880, which was relieved by hypodermatic injection of morphine and he rested through the night. On the 22d his pulse was 96; temperature 101° F. There was some induration in right iliac region, with tenderness. Bowels were thoroughly emptied by calomel, salts and enemas. In the evening the pulse was 110; temperature, 102.5° F.; some distention of abdomen and general tenderness over it, which increased until on the morning of the 23d the pulse was 125 and temperature 104.5° F. The abdomen was tumid and hard and there was delirium. The veratrum viride was given as in the former case and hot turpentine stupes were employed. The diagnosis was perityphlitis and general peritonitis. On this day—the 23d—Dr. Reamy and the late Dr. Keyt saw the case in consultation and concurred in the diagnosis and treatment. By the morning of the 24th satisfactory evidences of resolution were present in a lowering of pulse and temperature, less tumefaction of the abdomen, and a restoration to consciousness. The patient recovered slowly and was discharged convalescent May 23d. At that time there was still some induration and tenderness in the right iliac region. This eventuated in an abscess which was incised September 23, 1880, and exit given to about two ounces of fetid pus. The opening discharged for a week and then healed. There has been no trouble since, except that about five years ago he suffered an oblique inguinal hernia at the site of the incision.

Case III.—Mrs. E. T., American, widow, aged seventy-two years, first seen November 16, 1886. Paroxysmal pain over abdomen, more marked in right iliac region, where there was a small induration. Had been constipated. Pulse, 84;

¹ Read before the Academy of Medicine, Cincinnati, December 3, 1900.

temperature, 99.5° F. Bowels were completely evacuated with calomel, salts and enemas. On the 17th pain was increased, more marked tenderness over abdomen, which was everywhere distended and tympanitic. Pulse, 118; temperature, 103° F.; wild delirium. Diagnosis, perityphlitis and general peritonitis. Veratrum viride and hot turpentine stupes were employed as in the previous cases. By the 18th resolution was well established. After this, while she had no active febrile condition or noteworthy disturbance, she remained completely helpless and did not gain strength. On the 29th she began to have slight rigors, followed by perspiration. The skin in the right iliac region above Poupart's ligament was then noticed to be puffy and edematous; there was quite an area of dulness and tumefaction in this locality and it was apparent that an abscess was forming. On the 30th Dr. N. P. Dandridge was called in consultation. By careful dissection he opened, but did not expose, the abscess cavity, from which a half pint of most offensive pus was evacuated. This continued to discharge for about a week, and in two weeks was entirely healed. December 17th she was discharged convalescent. She never had any other abdominal trouble, except hernia, and died in her eighty-fourth year from cerebral hemorrhage.

Case IV.—Mrs. M., American, married, twenty-two years of age, was confined with her first child November 3, 1894, and was safely delivered of a vigorous male child, after an unusually difficult forceps delivery. She seemed but little affected by the severe experience, and attendance upon her ceased on the 16th, at which time she was in all respects perfectly normal, and she was left in the care of a trained nurse from Christ's Hospital. Was called again to see her on the 24th, when it was found that the nurse had permitted her to go without a movement of the bowels for seven days. She was in great distress, abdomen distended, lumpy and tender, particularly in the right iliac region. The temperature ranged between 100° and 102° F.; the pulse varied from 96 to 120. It was not before the 27th, by the use of oil, calomel, salts, all forms of enemas and high injections, that the intestinal canal was satisfactorily evacuated. By this time a general peritonitis was in full flower, which was treated as in the other cases reported and with the same success, so that by the 29th resolution was well established. She was discharged convalescent January 1, 1895. At that time an induration as large as a walnut yet remained on the right side in a line drawn from the superior iliac spine to the umbilicus, which was tender upon pressure. It wholly disappeared after the lapse of several months, but she had relapses of pain and tenderness, accompanying constipation at irregular intervals of two, three or four months, and only within the past two years has she ceased to have any disturbance therefrom.

Case V.—B. O., American, aged fourteen

years, an unusually large, stout girl for her age, was seized with severe abdominal pain November 27, 1899. She had not been feeling well for several days, having no desire for food and complaining of spasmodic pain, of light character, over the abdomen. Bowels inactive; slight tumefaction in right inguinal region. Calomel, rhubarb and salts produced free liquid stools, and hot fermentations were employed for relief of pain. Notwithstanding, a high grade of peritonitis was set up the night of the 28th, with violent delirium and a temperature reaching at the highest 105° F. The veratrum viride and hot turpentine stupes formed the treatment, as in the preceding cases, and after four days of anxious ministrations it was a supreme satisfaction to have resolution inaugurated on December 2d. She was discharged convalescent on the 10th. At that time there remained some induration in the right iliac region, and tenderness upon deep pressure. This wholly disappeared in the course of a month.

Case VI.—J. O'C., American, married, aged twenty-seven years, was seen in consultation with Dr. A. C. Poole May 22, 1900. Dr. Poole had been called to him the previous evening by reason of his suffering from severe abdominal pain, for which morphine was hypodermatically injected with relief. Condition at the consultation: Abdomen greatly distended, hard, tender, more particularly in right iliac region, where there was a feeling of induration. Patient said that he had taken cold from exposure in the Fire Department and that his bowels had been torpid. Temperature, 103.8° F.; pulse, 125; restless and clamorous for relief; semidelirious. Diagnosis, general peritonitis and probable appendicitis. At Dr. Poole's request I assumed charge of the case. Free action of the bowels was induced by calomel, salts and enemas, and veratrum viride and hot turpentine stupes were employed. To show the unpromising nature of the case it may be narrated, upon the authority of Dr. Poole and the people of the house, that a surgeon, who had been called in consultation earlier in the morning, had advised removal to a hospital and immediate operation as the only chance for the patient's life. As a result of the means instituted resolution was well advanced on the 24th, and June 10th he was discharged convalescent, at which time there was some tumefaction in the right iliac region, although no marked induration. He has since been perfectly well in all respects and is now doing duty in the City Fire Department.

In all the cases it will be noted that there existed at the commencement a condition of obstipation. With a torpid and distended bowel, there must necessarily occur a change in its relative position to the appendix, as well as a variation in the form and size of the appendical opening into the intestine. It is conceivable under such circumstances that products of fermentation or decomposition might find entrance into the appendix, set up a catarrhal inflamma-

tion, and toxins be developed through the influence of pathogenic organisms. These may be neutralized by alexins and no damage result; or plastic lymph may be formed, walling in the appendix, local abscess may ensue, finding exit either into the bowel or externally, with sloughing off of the appendix, after which healing takes place and all is right again, with the exception of the adhesions that have formed during the process. Yet again, as in the series of cases presented, the septic material formed passes over into the absorbents in the peritoneum and a general peritonitis lights up, which may not stop short of a general infection. Particularly may the muscular substance of the heart rapidly undergo pathological alterations and death ensue with astounding suddenness. This may even obtain when there has been no sign of toxemia, no peritonitis, no general infection and when the temperature and pulse have followed nearly the normal standard for days.

Another form of toxemia is now to be offered for consideration in the way of a series of clinical histories:

Case I.—Mrs. B. S., German, widow, aged seventy-three years, was seized with convulsions December 28, 1891. She was unconscious, had stertorous breathing, pulse 126, of moderate force and volume. Temperature was not obtained. The catheter was passed and a tablespoonful of urine, which was slightly albuminous was secured. Suppression of urine. Injected twenty-five drops of veratrum viride hypodermatically. Then followed within half an hour free perspiration, salivation and vomiting of bile. Consciousness returned within an hour, when temperature was normal and pulse 66. She was sitting up next day apparently well, but weak. She is still living and in good health at the age of eighty-four years.

Case II.—Mrs. B., colored, married, fifty years of age. Was seized with convulsions in night of August 27, 1894. At time of my visit she was unconscious, breathing stertorously. Temperature, 103° F.; pulse, rapid, full and bounding. Twenty-five drops of veratrum viride were administered hypodermatically. In an hour temperature was reduced to normal, and there was free perspiration and retching of bile; pulse, 70; sleeping quietly. Was engaged in her domestic duties on the 29th.

Case III.—K. G., infant, nine months of age, had been ill with enterocolitis since March 12, 1897. It had become greatly emaciated, when it was taken with carpopedal spasms March 23, 1897. There was complete unconsciousness. Temperature 104° F. Twelve drops of veratrum viride were at once injected hypodermatically. It promptly reduced the temperature, producing diaphoresis and vomiting of bile. Consciousness was soon restored. During the intervals of retching the child slept peacefully, perfectly relaxed. It was afterward able to retain and assimilate nourishment and complete recovery was established.

Case IV.—J. B., married, Scotch-Irish, seventy-three years of age. Had enlarged prostate with retention of urine occasionally, for which it had been necessary to catheterize him at various times. On September 11, 1897, which was an exceedingly hot sultry day, with the atmospheric temperature at 96° F., he suddenly became unconscious and slight spasmodic movements of the arms and legs occurred. When reached he was wholly unconscious, quiescent, breathing stertorously—with Cheyne-Stokes respiration—and had passed feces in bed. Pulse, 132, full and bounding; temperature, 105.5° F.; urine suppressed. Catheterization obtained little more than a teaspoonful; no albumin. It was considered a case of heat-stroke with uremia. Thirty drops of veratrum viride were injected hypodermatically. Within half an hour the temperature was reduced to 100.5° F., and the pulse to 84. Consciousness returned within an hour. As in the other cases there was copious perspiration and salivation, with free vomiting of bile. Discharged convalescent September 15th. He had another similar experience June 27, 1898, when the atmospheric temperature was "well up in the nineties." This time the temperature in the axilla was 105° F. Twenty-five drops of veratrum viride were hypodermatically injected with the same good effect as before. The body temperature went up again on the two succeeding days and the hypodermic injections of veratrum were repeated with the same result. Discharged convalescent July 6th. He died April 2, 1900, of secondary nephritis consequent upon the prostatic enlargement and catheterization.

Case V.—B. W., American, married, aged sixty-five years, a very stout man, was seized with convulsions April 12, 1898. He was found unconscious and with stertorous breathing. Pulse was rapid and weak; temperature, 100° F. Sample of urine obtained next day of normal reaction. Injected hypodermatically twenty-five drops of veratrum viride. This was followed by free perspiration and retching of bile, and return to consciousness ensued in due time. Next day was attending to his ordinary duties. Died suddenly March 23, 1899. Was taken with a chill in a street-car and just as he reached his home, he expired with all the symptoms of pulmonary engorgement.

Case VI.—Mrs. O., American, widow, aged sixty-two years, was visited the night of July 16, 1900. She had been seized with convulsions of face and arms of moderate severity. Was delirious, rolling about in the bed; pupils somewhat dilated, with a wild and staring appearance of eyes. Temperature, 101.4° F.; pulse, feeble and frequent. Twenty-five drops of veratrum viride were injected hypodermatically. Free perspiration, salivation and retching of bile ensued with restoration to consciousness and restfulness.

To the above may be appended a case of different character, yet nevertheless one of toxemia induced by pneumococci.

Case VII.—J. G., a vigorous man, eighty years of age, was taken with severe pain in lower, anterior portion of right chest the evening of March 17, 1900. He had a loud, blowing, systolic murmur, most accentuated at apex of heart, but generally diffused, which had existed for some time and which, in all likelihood, was due to calcareous deposits upon the edges of the mitral valves. He was breathing rapidly and with difficulty, had a short, hacking cough, was semi-delirious, and constantly insisted on getting out of bed. Temperature, 102.6° F.; pulse, 120. There was dullness on percussion over a circumscribed portion of the lower lobe of the right lung anteriorly, and fine crepitation corresponding to the area of dullness. He had passed freely urine of normal reaction. Twenty-five drops of veratrum viride were injected hypodermatically. Free perspiration, salivation and retching of bile followed in due order. The temperature fell to 99° F. and the pulse to 58. Pain and delirium ceased and he rested easily the balance of the night. The temperature showing a tendency to rise next day, the veratrum was exhibited by mouth in four-drop doses every two hours. The cough loosened and there was expectoration of streaked mucus. He progressed steadily and was discharged convalescent March 21st, after an illness of five days.

Another case is added because it may possibly have been one of toxemia, although I regard it as one of gastralgia and hysteria in the male.

Case VIII.—J. S., American, aged twenty-eight years, widower, lost his wife last January in Frankfort, Ky., from puerperal convulsions. He had convulsions himself at the time of her death. Subsequently he removed to Portsmouth, Ohio, where he had several attacks of convulsions. He was considered in grave danger of losing his life each time and recovery was slow. Was treated each time by morphine hypodermically. I saw him July 13, 1900, in tonic convulsions, so that it required the utmost efforts of two strong men to hold him on the bed. He was apparently unconscious. I learned that he had eaten a hearty supper of boiled beef, cabbage, dumplings and Swiss cheese. Upon retracting the lids the pupils were normal and the balls were rolled upward and inward to avoid the light. Thirty drops of veratrum viride were injected hypodermatically. In a few minutes his stomach was emptied of an enormous quantity of material. Free perspiration and salivation followed, with continued retching of bile; consciousness returned. There were no more convulsions and he rested quietly through the night. The next day he was able to sit up, but was sore from the muscular exertion of the night before. He was given directions as to diet, a dissertation upon the efficacy of will power in controlling reflexes, and was told to take one ounce of linseed oil twice daily—morning and evening. He has remained well since. In this connection the suggestion arises that veratrum viride may prove a valuable agent, on account of its relaxing prop-

erties, in gastralgia from muscular spasm of the stomach pylorus, and in cases of hepatic colic from the passage of gall-stones through the ducts. By its employment in such conditions one may possibly dispense entirely with the use of morphine hypodermatically.

The knotty problem of elucidating the *modus operandi* by virtue of which this drug is enabled to display its beneficial attributes, now presents itself. After its administration the effects first observed are referable to the glandular system. The sudoriferous glands are excited to activity, the skin becomes bathed with sweat, and in some cases it is poured out over the whole surface of the body in such quantity that the patient appears to have been drenched with water. The salivary glands also pour out their secretion abundantly and there is drooling from the mouth; sometimes, however, when there is most copious perspiration, salivation is not prominent. In all cases there is vomiting or retching of bile, and the quantity of this fluid brought up in many instances is so great as to preclude the idea that it is simply the contents of the gall-bladder which has undergone evacuation through the stomach by way of the intestine. The capacity of the gall-bladder is stated not to exceed an ounce and a half, and more than this quantity of fluid has been observed to be ejected in a single effort at retching, after all the residual contents of the gall-bladder and stomach must have been expelled. The cells of the liver are undoubtedly excited to greatly increased activity through a direct action of the drug upon them. This excitation of the salivary and sweat-glands has been ascribed by investigators to vasomotor paralysis and consequent decrease in pressure in the peripheral blood-vessels, but there is never noted such an outpouring of fluids in cases of spinal injury with apparently complete vasomotor paralysis. In addition to this vasomotor influence, there must be some excitatory action of the drug upon the gland-cell. In the case of *jaborandi*, a congener of veratrum viride, H. C. Wood, Jr.,¹ admits as probable a special action upon the salivary gland-cells, which he does not accept for the latter agent. For all the evidence adduced to the contrary by experimenters, in the light of clinical observation we may claim that veratrum viride, in addition to its effects upon vasomotor functions, exerts some stimulating influence on the cells of the liver, salivary and sweat-glands.

These glandular phenomena have a therapeutic significance not to be passed over lightly. The activity of the salivary glands is, perhaps, of much less importance in toxemias than that of either the liver or sweat-glands. But we know that the salivary glands take up toxic substances from the system which are excreted by the mouth and that potassium sulphocyanide is contained constantly in the secretions, elaborated from the blood by the cells within the glands, showing that they possess within themselves a power of trans-

¹ Therapeutics, Materia Medica and Toxicology, Third Edition, p. 514.

formation upon materials recognized as poisons. These properties of the salivary organs, under the stimulus of the green hellebore, may exercise a very considerable power in neutralizing and removing leucomaines and toxins.

The liver is the largest glandular organ of the body. It was long ago determined that one of its functions was the destruction, within its substance, of matters inimical to the organism. Concerning the method by which this is accomplished there is no definite information. When the position of the liver is considered, its large size, its nearness to all the organs concerned in digestion and blood-formation, stimulation of its energies, as by *veratrum viride*, to many times the normal value of its work must greatly increase its efficiency in disposing of toxic material brought to it from the abdomen by the portal vein and from all over the system by the hepatic artery. It is a factor in the conservation of life under conditions of toxemia of no secondary value. The retching and vomiting induced by the drug also indirectly spur up the liver to increased secretion, through muscular action and siphonage. It is likewise, undoubtedly, indicative of a hyperactivity of the cells of the stomach, brought about through the instrumentality of the medicament under deliberation.

The most striking of all the issues proceeding from a sufficient dose of *veratrum viride* is, of course, the profuse skin transpiration because it is visible upon the surface. This, as made manifest in some of the case reports preceding, lowers the temperature of the body, where it is elevated above the normal, in one instance effecting a reduction of five degrees Fahrenheit, and that within a short time. It always acts promptly in lowering temperature, when above the normal, through the cooling that happens from evaporation over the whole body surface. The removal of waste and pernicious elements which this immense transudation involves may, by checking metabolism, so tranquilize the heat-centers as to arrest heat-production; or, the cooling which follows the pouring out of the surface flood may be competent to quiet the irritability of the heat centers. Or, yet again, after such an overflow and withdrawal of the fluids of the body, in the general acceptance of the neuron-theory, there must be some retraction of nervous processes from a lack of distending fluid to maintain them in contiguity. This should cut off the centers from further control in heat-production. But it has a yet wider interpretation, which is borne out by the clinical fact that there is a state of somnolence under full doses of *veratrum viride* that, by a retraction of the nervous processes, reflexes are cut off and there is no passage over of irritations from center to periphery, or from periphery to center. It is not altogether improbable that this explains the behavior of *veratrum viride* toward the nervous system better than the bare statements that it is "a depressant to the spinal cord" or "acts upon the motor side of the cord."

The theory just enunciated may be dubbed the

mechanical theory of action, but it receives confirmation by the conduct of the heart under *veratrum viride*. From rapid, inordinate effort this muscular engine is slowed and quieted. This does not come about through an inhibitory power conveyed by the pneumogastric, but by the action of the drug upon the heart-muscle itself or its ganglia. It induces in the heart-muscle, as in the nervous tissues, a retraction or contraction—for heart-muscle does not retract much—which is a conservative process in that it squeezes out from the fibrils all waste and noxious products, brings the organ down from a distended over-acting mechanism to one working in perfect order and to the best advantage. In this way it protects the heart-muscle from the pathological changes that so often accompany toxemias.

It is also worthy of note that a reduction of the body-heat to the normal, or approximately so, retards greatly the activity and multiplication of pathogenic organisms. Conversely, phagocytosis continues energetically, the destruction of harmful microbes goes on unhindered—a process of great consequence in overcoming toxemia.

There remains another toxemia in which *veratrum viride* may prove a most excellent remedy. This is acute alcoholism. I have had no experience in its use, but, from employment of its congener, pilocarpine, in this class of cases, there is no doubt that, from the similarity of its action, *veratrum viride* should be equally efficacious. I was among the first to show the value of pilocarpine in alcoholism in the *MEDICAL NEWS* of September 19, 1885. It has the advantage over *veratrum viride* in not producing retching and vomiting, if, indeed, this should not prove to be a disadvantage therapeutically. H. C. Wood, Jr.,¹ states that he has knowledge of a death produced by *veratrum viride* in delirium tremens and, therefore, he condemns it in this condition. As, however, in the consideration of its toxicology, he declares that the drug is perfectly safe in any single dose in which it may chance to be administered, it is fair to presume that in the instance he refers to the man may have died in spite of it. Occasionally a patient with delirium tremens inconsiderately dies. If deaths from delirium tremens are chargeable to the medicaments ingested there are not many articles in the *materia medica* that should be considered safe to use in the treatment of this trouble.

In regard to the preparation employed, use has always been made of Norwood's tincture, boiled and filtered. In reference to the method of administration, the hypodermatic is preferred in all cases when prompt action is desired. Sometimes there is considerable soreness and induration from the injections which may persist for a week or two, but abscesses have never been observed.

Plague at Cape Town.—This continues to be serious. New cases are reported daily. A general epidemic is not feared, however.

¹ *Op. cit.*, p. 160-1.

THE TREATMENT OF DELIRIUM TREMENS BY THE INTRAVENOUS INFUSION OF SALINE SOLUTION.¹

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THE disease under consideration is characterized by auto-intoxication. A chronic degeneration of the glandular structures of the body results from the prolonged use of alcohol. Particularly when the whole organism suffers the shock of traumatic injury, the secreting and excreting structures, by virtue of these degenerative processes, become disturbed in their functional equilibrium and a toxemia results. The identity of the peculiar toxins of delirium tremens has not been determined. It must be assumed, however, that these toxins are in part waste materials which are dependent upon the emunctory organs for their elimination and in part the so-called internal secretions of organs, which in the normally-balanced organism play a physiological rôle. Delirium tremens is characterized by the action upon the nervous system of these products, which, by virtue of the pathological conditions present, fail to become eliminated, absorbed or neutralized.

In the majority of these cases the natural resources of the system are sufficient to overcome the toxemia, and the glandular equilibrium becomes restored. In a certain class of cases the intoxication is fatal, even in the presence of kidneys which are able to excrete an adequate amount of urea.

The great value of intravenous salt infusion in cases in which the blood contains a profoundly poisonous amount of toxic substance has lead the author to apply this method of diluting and hastening the elimination of the poison in the extreme intoxication of delirium tremens. This opportunity is taken to place on record the following experience, occurring in the service of Dr. Pilcher in the Methodist Episcopal Hospital in Brooklyn. The patient was a man, thirty years of age, an habitual drinker of whisky. The urine showed the evidences of but a very moderate degree of urea-eliminating derangement. He suffered a fall from a wagon, sustaining a contusion of the side of the chest and abdomen and a slight wound of the scalp, with transient cerebral contusion symptoms. He regained full consciousness in about an hour. The first symptoms of tremor appeared a few hours after the injury. This continued in a slight degree until the third day, when the temperature rapidly rose to 104.2° F., and the patient became profoundly overwhelmed with the disturbances associated with a violent attack of delirium tremens. The pulse became rapid and weak, and on the fourth day the temperature was 105° F. Until this time sedatives and the routine treatment for delirium tremens had been employed, together with alcohol-sponging for the fever. On the fifth day his general condition was still worse. The heart was weak and rapid. The skin was cyanotic and bathed in cold perspiration. The delirium was

of the low muttering type, and the general picture was that of a case profoundly overwhelmed with some virulent systemic poison, which promised to terminate fatally within thirty-six hours. At this stage an infusion of 1,200 c.c. (40 ounces) of saline solution at a temperature of 116° F. was introduced into the median cephalic vein. The change that came over the patient was a most striking one. The circulation rapidly improved, the delirium subsided, and the patient regained consciousness, all within a few hours. On the day following the temperature had subsided to 99.6° F., and the complete recovery was rapid and uneventful. The changes in this case were so rapid and striking that it seemed like a resuscitation.

The infusion in such cases as this accomplishes the following things: It increases the amount of the circulating medium in which the toxic materials are dissolved, thereby diluting the poison and bathing the nerve-centers with a more attenuated solution of the same. The amount of circulating fluid is increased above the normal, so that the excretion of fluids through all the fluid-excreting channels is increased, thereby carrying off in solution much of the contained toxins. The action of the heart is improved by the filling of the relaxed vessels. These suffice to restore the physiological equilibrium and turn the balance in the favor of recovery. Thus we may add indefinitely to the uses of this most valuable therapeutic measure.

YOHIMBIN AND ITS SALTS; A NEW APHRODISIAC.

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THE remedies composing the group of aphrodisiacs have usually been disappointing. Some of them stimulate the function in a spasmodic way and have no power of sustained action; others irritate the genito-urinary tract and set up structural changes in the kidneys, and others induce profound nutritive disturbances, like acute yellow atrophy of the liver. Cantharides is a representative of the former group, and phosphorus of the latter. There is, therefore, a distinct need of a remedy, which shall be active in effecting results, but free from after complications.

In the issue of the *Therapeutische Monatshefte* for November, 1900, there is an account of yohimbe, a new aphrodisiac, which seemed competent to supply the existing deficiency. The chemistry, physiological action and therapeutical properties of the new remedy have recently been investigated at Berlin. One capable and enterprising pharmacist, Mr. Frank E. Morgan, has procured a supply of the new remedy, and I have repeated much of the experimental work with the view to ascertain whether the remedy has preserved its powers after transportation across the Atlantic. Before giving an account of my own researches, I submit an abstract of the work of our German colleagues.

¹ Read at the annual meeting of the Medical Society of the State of New York, held at Albany, January 29, 30, 31, 1901.

Historical.—Specimens of the plant were sent to Berlin from a German colony established in equatorial Africa. It was ascertained to be a member of the *Apocynaceae*, and the native name is yohimbe, or yumbehoa. The bark is the chief source of the active principle. The chemical investigation was made by L. Spiegel who separated an alkaloid which he named yohimbin. It is a crystallizable principle and has the formula $C_{22}H_{42}N_2O_4$. It combines with acids to form salts, as the sulphate, nitrate, phosphate, etc.¹ The most useful salt for internal administration is the chlorhydrate. The physiological investigation was made by Oberworth² with the following result:

The toxic dose of yohimbin for rabbits is 0.011 gram given intravenously and 0.053 gram subcutaneously, per kilogram of body-weight.

In frogs yohimbin causes a complete paralysis of the nervous system, with periods of slight remission of effect, proportional to the size of the dose and the duration of the action. The same effects occur in warm-blooded animals.

In cold-blooded animals (frogs) yohimbin inhibits the heart's action, finally stopping it in diastole. The previous administration of atropine does not prevent this result. It, also, paralyzes respiration, and if artificial respiration is resorted to death ensues by failure of the heart. The blood-pressure is lowered as soon as the injection is practised, and the pulse sinks proportionately. The blood-pressure falls, not alone through collapse of the arterial wall, but from weakness of the heart itself, and when a temporary rise of the pressure is caused by compression of the abdominal aorta it has no influence on the result. The heart's pulsations are not increased by section of the vagi, or by the injection of atropine, nor does irritation of the vagus center affect the pulse-rate, and peripheral stimulation of the vagus is equally without influence. The effect of yohimbin on the heart must be due, therefore, to an action on the sympathetic or on the motor ganglia of the heart, or on both.

Yohimbin acts on the genital apparatus in a marked manner, in warm-blooded animals. In various animals erections and emissions occur in a notable degree. The smaller doses cause unrest, excitement, erections of the genital apparatus. Large doses cause violent spasms, followed by prolonged weakness. No ill effects have followed in the sexual organs, and the kidneys remain unhurt by the considerable hyperemia which occurs throughout the genito-urinary system.

Therapeutic.—Clinical studies of yohimbin and its salts were made by Löwy, Mendel and others. Löwy observed marked aphrodisiac effects, swelling of the testes, and erections of the penis, but even if these effects were long continued they were not followed by any permanent injury to the sexual apparatus, unlike in this respect to the action of cantharides. It was noted

especially that yohimbin does not cause any structural alterations of the kidneys. The observations of Löwy have been supplemented and confirmed by Mendel. In cases of sexual neurasthenia he found yohimbin most useful. However, in tabes and in other organic spinal affections it appeared to have no curative action.

My course of investigation included some simple observations on the effects of yohimbin (the chlorhydrate) on cold and warm-blooded animals. It is not actively toxic. The lethal dose for a medium-sized frog is $\frac{1}{10}$ grain, for an ordinary gray rabbit, $\frac{1}{4}$ grain. In observations on adults I found that the dose should be from $\frac{1}{20}$ grain to $\frac{1}{8}$ grain. Mendel advises a one-per-cent. solution of the hydrochlorate, of which he administers five to ten drops, making the dose $\frac{1}{20}$ to $\frac{1}{10}$ grain. It is not soluble in such proportion without the aid of heat.

When a frog is injected subcutaneously with $\frac{1}{10}$ grain, in a few minutes some irregularity of muscular movements is observed, paresis comes on, and nearly rhythmical muscular contractions take place at intervals. When the limbs are extended, they remain so for a few seconds, and are then drawn up in the usual position. When the toes are smartly pinched they are freed by a succession of rapid movements. Complete paralysis at length ensues, the animal lies extended, but occasional muscular spasms occur from above downward. Up to complete loss of muscular power, movements ensue on pinching the toes. Electrical, mechanical, and chemical irritation cause muscular movement and irritation of the sciatic nerve, separated, also induce contractions of the leg muscles, showing that the paralyzing action is central, not peripheral.

The action of the heart ceases in diastole and both cavities are distended. Electrical stimulation causes no response. Section of the pneumogastriacs and section of the cord high up are alike without influence on the mode of termination of the heart's movements, so that we may conclude with our German confrères that yohimbin acts on the cardiac motor ganglia.

There is close resemblance in the action on cold- and warm-blooded animals (rabbits). Paresis with trembling, followed by paralysis of motility, ensues on injection of yohimbin ($\frac{1}{4}$ grain). There is fibrillary trembling of the muscular system followed by spasmodic contractions, and nodding movements of the head. Sensibility is not impaired, but rather heightened, and muscular contractions on mechanical, chemical and electrical stimulation always take place until the centers are overpowered. It is a central and not a peripheral paralyzer.

The respiratory movements are affected by a succession of spasmodic shocks of the muscles of respiration until they finally cease. This effect is exerted on the centers in the medulla and is not changed by division of the pneumogastric. The action of the heart becomes more or less irregular, with the progress of the systemic impression, and ceases finally in the diastole.

¹ Chemiker-Zeitung, as quoted in Therap. Monatshefte, November, 1900.

² Virchow's Archiv, Band 153.

Changes in the tension of the vascular system, division of the pneumogastric, do not change the action on the heart's movements.

Male rabbits are notoriously possessed of an active state of the sexual function. Under the influence of yohimbin this natural state is much intensified. A condition of hyperemia of the genito-urinary tract is set up, including the kidneys and bladder, especially about the prepuce.

To illustrate the mode of action of yohimbin in general on warm-blooded animals, I give the details of the effects of a less than lethal dose of the alkaloid: A medium-sized gray rabbit received by hypodermatic injection one-fourth of a grain. In an hour there occurred some weakness and irregularities of gait, some spasms of the muscles of the legs, and of the neck, followed by general muscular weakness, and inability to stand. He fell on his side and was unable to rise, but when his toes were pinched, he made efforts to move them away. His respiration was irregular and interrupted by what seemed to be spasms of the diaphragm. The action of the heart was irregular; the pulsations in general were frequent and weak, but occasionally a stronger one would occur. Then came on the nodding movements of the head which were nearly rhythmical, but often interrupted by more active convulsion extending from above downward. The kidneys acted copiously and the bowels moved freely. At the end of two hours the rabbit lay on his side, motility lost, and only faint breathing movements could be detected. In another hour he began to make feeble movements and attempts to rise when his toes were pinched, the respiratory and cardiac movements increased in regularity and volume, and at the expiration of another hour he began to nibble at a carrot placed near him, and finally got on his legs, which at first were feeble. The next morning he was quite lively, seemed nowise injured by his experience, ate freely of carrots, and drank water.

The experiments made on animals indicate that yohimbin is a central paralyzer of motility, but not of sensibility. With the muscular paresis occur spasms of the muscles and nodding movements of the head involving the neck muscles. It affects respiration by acting on the chest muscles and the diaphragm. The heart's action is weakened by it, and ultimately the organ is paralyzed, stopping in the diastole. This result is due not to peripheral impressions, but to an action of the cardiac motor ganglia. It is not a muscular poison; the muscles themselves and the motor nerves react to mechanical and electrical excitation.

The most interesting point regarding yohimbin is its effect on the sexual system. That it causes hyperemia of the genitals and increased activity of the apparatus seems undoubted. That it increases the sexual function is apparent, but it does not appear to set up any inflammatory action in the kidneys.

Clinical.—Sufficient clinical experience has not yet accumulated to permit an authoritative judg-

ment of its therapeutical value. Mendel of Berlin found it useful in sexual neurasthenia, but thus far my own results are rather negative in this respect. It may be the dose used has not been sufficient to develop this action in man. The dose favored by the Berlin observers, as already stated, ranges from $\frac{1}{20}$ to $\frac{1}{10}$ grain. In prescribing it for adults I have not gone beyond $\frac{1}{20}$ grain. This has not proved sufficient to excite the sexual organs in healthy adults.

That it should prove useful in sexual neurasthenia, in depression of the sexual organs by age and premature debility, seems warranted by the mode of action disclosed in the experiments on animals.

My own interest in the remedy has been rather the expectation that we should find yohimbin useful in albuminuria. The fact that it has a marked effect on the renal and genito-urinary systems indicates that it may exert an action of substitution in diseases of these organs. But to what extent it may have a curative effect in renal diseases can only be determined by a more extended clinical experience.

THYMOTAL; A NEW REMEDY FOR ANKYLOSTOMIASIS.

By J. E. POOL, Ph.G.,

OF PARAMARIBO, DUTCH GUIANA.

WHEN my little daughter was suffering from ankylostomiasis, I saw the terrible effect of thymol and how difficult it was to take; I saw the little boy of my cook drop dead shortly after he had taken thymol pills; I saw a baby suffocated by thymol electuary and learned that two patients at the Military Hospital had become blind by the use of large doses of extractum filicis, usually prescribed for ankylostomiasis. I then determined not to rest until I had found a less dangerous and better remedy for this dangerous and very frequently-occurring malady of the tropics.

After much difficulty I succeeded in making a carbonate of thymol as has been done of guaicol, and I called it "thymotal Pool." Its preparation takes place by the influence of phosgen gas on thymolnatrium, leaving after purification an insipid, white crystalline substance, the smell of which only feebly reminds one of thymol.

It is a neutral substance, with a fusing-point of 49° C. and a boiling-point of more than 400° C., and it gives no other reaction save of its having been divided into thymol and carbonic acid by an alcoholic solution of potassa. The influence of an alcoholic potash solution resembles that of an alkali in *status nascendi* like the saponifying action of the intestines. A boiling aqueous solution of potash does not break it up and neither acids nor the human stomach have any effect on it.

Seven patients were treated for ankylostomiasis with the new remedy in the Military

Hospital with excellent results, as is evidenced by the following report of the medical officers of the hospital:

Drs. E. A. Koch, J. W. van Rijn and C. van der Meer, medical officers at the Military Hospital of Paramaribo, declare herewith that seven patients, children as well as adults, have been treated with favorable results in this Hospital with the new remedy, thymotal, and that this new remedy is far to be preferred to thymol, for the following reasons:

(1) Because it is without odor and can therefore be taken by children who cannot swallow pills. At the same time the danger of being suffocated by thymol electuary, which occasionally happens in infants, is avoided; (2) because it is not dissolved in the stomach, as is thymol, and is not vomited, as is often the case with this drug; (3) because thymotal does not cause giddiness, as thymol does very shortly after it is taken; (4) because the danger of thymol-poisoning is reduced, especially in those children whose bodies are weakened by *Ankylostoma*; (5) because the carbonate of thymol is broken up in the body by the influence of the bile and the mucus of the intestines and thymol is formed exactly at the places where the *Ankylostoma* are found in the body, i. e., the duodenum and the adjacent parts of the intestines; (6) because it cures more rapidly than does thymol (as far as can be judged from the treatment of so small a number of patients).

As is universally known, the malady ankylostomiasis is known in all tropical countries, for instance, in West India (in the Antilles the malady is called "malceur"); in Colombia, where it is called "tuntun"; in the Brazils, where it is called "opilaças"; in Egypt, where it causes the so-called "Egyptian chlorose"; in Italy; in Switzerland, where it causes the "Minen" or "Grubenkrankheit." In the Dutch East Indies the malady seems to be known in some regions, but it appears that no efficient remedy is known there. In other regions it seems to be unknown and it has even happened that medical officers from the East Indies, who had been sent to Surinam, did not know the malady. On the other hand, several Javanese, among the immigrants freshly disembarked, suffered very much from the disease. At Delhi, where the workmen find very praiseworthy medical attendance, the disease is a true curse, as it also is at Surinam.

In this Colony, with a population of about 40,000, nearly 60 kilos (120 pounds) of thymol are consumed yearly, which proves that the population receives very good gratuitous medical attendance, but I feel sure that in other countries the disease will be equally prevalent.

In Europe experiments with the new remedy were made by Mr. Stheeman on round worm and tapeworm. These experiments are still going on, but it has been stated that the remedy is very efficacious, consequently it will soon compete with male fern, pomegranate, santonine and cooso.

The directions for this remedy are as follows:

For adults, grams 2.0 (30 grains); for children, gram 1.0 (15 grains), and for babes, gram 0.5 (7.5 grains) three or four times daily. This treatment must be continued for four days and a purgative must be taken on the fifth day, after which the whole treatment must be repeated until no more eggs of *Ankylostoma* are found in the stools.

BELLADONNA VS. SCOPOLIA.¹

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So much has been presented in regard to this question and so many discordant statements are to be found in literature that it has been deemed important that the facts in regard to the relative value of belladonna and scopolia should be investigated and an unbiased opinion reached.

The status of the belladonna-scopolia question is as follows: The present belladonna plaster of the Pharmacopœia is but little used, owing to objections both to the leaf extract, from which it is made, and to the mass used as a basis. Plaster manufacturers, therefore, resort to the root extract instead. This root extract is prepared, for the most part, both in this country and abroad, from the scopolia rhizome (*Scopolia carniolica*), more or less of the scopolia root also intermixed, instead of from belladonna. It is claimed upon one hand that this rhizome and root yield a separate article from a therapeutic standpoint, and that it is used because of cheapness. Incidentally, it has been claimed that the scopolia plaster is nearly inert, and again, that it is extremely dangerous—the latter claim being based upon its content of hyoscine. Upon the other side, it is claimed that it does not differ in kind of action from the belladonna-root plaster, the percentage of hyoscine being extremely small and the hyoscyamine present acting the same as atropine. It is also claimed that if the present extensive use of scopolia were to be turned over in favor of belladonna root, the supply of the latter would become insufficient to meet the demand.

This controversy has been carried on up to the present time very largely in commercial circles, yet the suggestion has been urged upon the Pharmacopœia Revision Committee that it authorize the use of scopolia extract in plaster-making, either independently, or as an alternative for belladonna, at the option of the manufacturer. Under these circumstances the Research Committee of the American Pharmaceutical Association, one of the chief duties of which is to work in the interest of the Pharmacopœia, concluded that it was desirable for it to undertake this investigation, and Dr. H. H. Rusby, Professor of Botany and Materia Medica at the New York College of Pharmacy, assumed

¹ Read before the Medical Society of the State of New York at its ninety-fifth annual meeting, held at Albany, January 29, 1901.

the duty of bringing it about. The steps which were taken were as follows:

Three lots, each of twenty-five pounds, of belladonna root were secured in the New York market, each lot representing a different importation. This root was all examined by Dr. Rusby, piece by piece, to be sure that it contained no foreign matter of any kind. It was then mixed and prepared for powdering. Similar action was taken in the case of three lots, each of twenty-five pounds, of scopolia. All the root pieces of the latter, because of their close resemblance to belladonna root, and because some of them might possibly have represented an admixture, were thrown out. These represented about 5 per cent. or more of the entire amount. These two articles, that is, the belladonna root and the scopolia rhizome, were sent to a large manufacturer of the highest reputation for the excellence of his manufactured drugs, but not interested in this discussion, with careful explanation of the nature and importance of the work, and a request was made that they be made up into fluid extract, tincture and total alkaloids, with the greatest care possible. This was done under the direction of an expert, who resorted to processes which were certain not to effect any change in the original nature of the alkaloids contained, evaporation by the cold process being strictly adhered to. One-half of the total amount of each drug was converted into fluid extract, tincture and extract, while the other half was used for the complete extraction of the total alkaloid. Of this total alkaloid one-half was retained for the purpose of being examined chemically, microscopically and optically. Of the remaining half a portion was used in making a large number of one-five-hundredths-grain tablets, and the remainder employed for experimental purposes. All this alkaloid, it must be stated, was first converted into the form of the hydrochloride. The alkaloids have been experimented with by others and will be the basis of separate reports.

Coming now to the galenical preparations, it was found that the scopolia rhizome assayed 0.55 of 1 per cent. total alkaloids—a rather low yield as compared with other assays. Its fluid-extract assayed the same, and it was from this that one of the liniments was prepared. The belladonna root yielded the extremely high percentage of 0.93, and its fluid-extract, of which the other liniment was made, yielded the same. The extract showed also a great difference, the belladonna containing 2 per cent. of total alkaloids and scopolia 1.6 per cent.

Not having any interest in plasters, I chose the liniments (95 parts of fluid-extract with 5 parts of camphor) for my experimental work. I received from Dr. Rusby two bottles marked only "A" and "B," but without any clue as to their contents other than that each contained a liniment derived from one or the other of these sources. The method pursued was as follows: A quantity of the liniment (noted in each experiment) was taken and, after the temperature, pulse, respiration and general condition of the adult had been recorded, this was rubbed into the inner surface of the forearm until the skin became again dry. Records were made

at intervals of thirty minutes unless otherwise specified, the first being made immediately before using.

LINIMENT "A."

No.	Amount.	T.	P.	R.	Pupils.	Mucosæ.	Skin.	Tongue.
1.	20 drops	99.4	88	22	Medium	Pale	Cool	Moist
		99.6	89	26	Medium	Pale	Cool	Moist
		99.5	88	28	Medium	Pale	Warm	Moist
2.	20 drops	99.4	88	18	Contracted	Pale	Warm, dry	Moist
		99.8	90	28	Dilated	Pale	Warm, dry	Moist
		99.9	100	28	Dilated	Pale	Warm, dry	Moist
3.	20 drops	99.2	88	20	Medium	Red	Warm, dry	Moist
		98.4	80	20	Medium	Red	Warm, dry	Moist
		98	84	18	Medium	Red	Warm, dry	Moist
4.	20 drops	98	80	18	Contracted	Pale	Warm	Moist
		98	80	20	Contracted	Pale	Warm	Moist
		98	80	20	Contracted	Pale	Warm	Moist
5.	20 drops	98.4	78	24	Medium	Red	Warm, dry	Moist
		98.4	78	24	Medium	Red	Warm, dry	Moist
		98.4	78	24	Medium	Red	Warm, dry	Moist
6.	20 drops	100.2	96	24	Contracted	Red	Moist	Moist
		99.2	88	26	Contracted	Red	Moist	Moist
		100.2	100	24	Contracted	Red	Moist	Moist
7.	40 drops	98.4	110	22	Contracted	Pale	Warm, dry	Moist
		97.8	100	18	Contracted	Pale	Warm, dry	Moist
		99	120	20	Contracted	Pink	Flushed	Dry
8.	40 drops	98.6	74	20	Pupils slightly dilated, thirsty and nauseated.			
		98.6	84	28				
9.	50 drops	98.2	74	20	Headache, nauseated, very sleepy.			
		98.6	80	30				
10.	60 drops	98.2	50	20	Flushed face, nauseated, slight headache, thirsty and pupils slightly dilated. Sleeping.			
		98.4	60	28				
11.	60 drops	98.2	70	18	Nauseated, severe pain over heart, face flushed, pupils considerably dilated, extremely thirsty and very drowsy.			
		98.4	80	30				
12.	60 drops	98.6	120	20	Medium	Red	Cool	Moist
		98.6	120	22	Medium	Red	Cool	Moist
		100.2	130	24	Slightly dilated	Red	Flushed	Dry
		101.2	133	26	Dilated	Red	Flushed	Dry
(The last record was made two hours after using the liniment.)								
13.	70 drops	98.2	100	24	Peculiar feeling in chest; moderate dyspnea, nauseated; flushed face; headache; intense coughing lasting five minutes; dilated pupils; extremely drowsy.			
		98.6	80	30				
14.	70 drops	98.2	70	18	Very drowsy and slightly nauseated. Relief of pain in back at point of application. Very drowsy, dilated pupils. (This application was made over the site of a lumbago).			
		98.4	80	30				
15.	70 drops	98.4	70	24	Pain in head; numbness of arms; slightly nauseated; flushed face; thirsty and very sleepy.			
		98.6	84	30				
16.	80 drops	98.2	74	28	(Liniment applied to axilla.)			
		98.4	80	30				
17.	60 drops	98.2	98	20	Headache; nausea; pupils slightly dilated; thirsty. (This is the same patient as No. 16, but four days later.)			
		98.4	100	30				
18.	80 drops	98.2	98	18	Slight headache.			
		98.2	106	26				
19.	90 drops	98.6	56	29	Headache; nauseated. (The same patient as No. 18, but six days later; under the influence of digitalis.)			
		99.2	68	30				
20.	90 drops	97.2	90	24	Nauseated; headache; pupils slightly dilated.			
		98.2	96	30				

From these observations, considering the rise of temperature, pulse and respiratory rate, difficult respiration, the flushing of the face, reddened mucosæ, dry tongue and thirst, headache, drowsiness and dilatation of pupils—these symptoms becoming more marked as the amount of the liniment was increased—there was no doubt but that liniment "A" is very active and contains an atropine-alkaloid. In No. 12 poisonous symptoms were well marked.

LINIMENT "B."

No.	Amount.	T.	P.	R.	Pupils.	Mucosæ.	Skin.	Tongue.
1.	30 drops	100.2	110	24	Medium	Pale	Hot, dry	Dry
	= 17 drops of "A"	100	110	24	Slightly dilated	Pale	Hot, dry	Dry
		100	120	24	Slightly dilated	Pale	Hot, dry	Dry
2.	30 drops	98.6	84	18	Contracted	Moist	Red, warm	Moist
		98.6	96	17	Contracted	Moist	Red, warm	Dry,
		98.6	100	16	Contracted	Moist	Red, warm	Dry,
3.	30 drops	99.4	80	20	Medium	Pink	Cool	Moist
		99	90	22	Medium	Pink	Warm	Moist
		99	90	24	Medium	Pink	Warm	Moist
4.	30 drops	98.9	84	22	Medium	Pink	Cool	Moist
		98.4	80	20	Medium	Pink	Cool	Moist
		98.4	80	20	Medium	Pink	Cool	Moist
5.	30 drops	98.2	80	18	Contracted	Pink	Warm, dry	Moist
		98	82	20	Contracted	Pink	Warm, dry	Moist
		98.4	81	20	Contracted	Pink	Warm, dry	Moist
6.	30 drops	99	90	20	Contracted	Pink	Cool, dry	Moist
		99.2	88	21	Contracted	Pink	Cool, dry	Moist
		98.9	86	20	Contracted	Pink	Cool, dry	Moist
7.	30 drops	98	78	20	Contracted	Pink	Cool	Moist
		98	80	22	Contracted	Pink	Cool	Moist
		99	90	24	Contracted	Pink	Cool	Moist
(The last observation was made two hours after the first.)								
8.	40 drops	98	68	24				
	= 23 drops of "A"	98	60	28	Pupils same.			
9.	40 drops	98.6	80	20				
		98.4	80	20	Pupils same.			
10.	60 drops	97.8	84	32				
	= 34 drops of "A"	97.8	72	28	Pupils same.			
11.	60 drops	97.8	64	32				
		98.2	60	24	Pupils same.			
12.	60 drops	98.6	80	20				
		98.8	80	20	Pupils same.			
13.	80 drops	97.6	72	28				
	= 45 drops of "A"	98.2	72	24	Pupils same.			
14.	80 drops	98.8	80	20				
		99	80	20	Pupils same.			
15.	120 drops	98.2	80	18				
	= 68 drops of "A"	98	68	18	Pupils same.			
16.	120 drops	98.6	84	17				
		98.6	82	19	Pupils same.			
17.	120 drops	98.5	82	16				
		98.6	86	16	Pupils same.			
18.	120 drops	98.8	72	16				
		99	76	16	Pupils same.			
19.	180 drops	98.6	76	16				
	= 106 drops of "A"	99	80	18	Pupils same.			
20.	180 drops	98.4	74	16				
		98.6	78	20	Pupils same.			

In all of these experiments there was no change in the color or dryness of the mucosæ or in the tongue; there was no flushing of the skin nor any nervous symptoms. The only conclusion which

can be reached is that, excepting for the very moderate and inconstant changes in temperature, pulse and respiration, liniment "B" is inert.

After completing my observations I reported to Dr. Rusby that I had reached the opinion that the effects of liniment "A" were those of an exceedingly active preparation of belladonna. He then informed me that my opinion was correct and called my attention to the following:

"You have, therefore, to consider that your 'A' liniment made from the belladonna fluid-extract compared as .93 to .55 with your 'B' liniment made from scopolia fluid-extract. In estimating your comparative results, therefore, you must make allowance for this difference in strength."

Even after making due allowance for the difference in alkaloidal strength, the opinion still obtains that, as far as its use as liniment is concerned, scopolia is unproductive of results. For comparison in tabulating my results I have placed the equivalent alkaloidal strength of "B" in terms of "A."

Whether the alkaloids of scopolia (mostly hyoscyamine, with small quantities of hyoscyne) are, on account of their nature, not absorbed when exhibited as a liniment, but would be if applied in a plaster form, this investigation does not, of course, determine, but others now working upon that question will soon be in a position to report. My work has established but one fact: Scopolia rhizome as fluid-extract incorporated into a liniment is devoid of therapeutic action and should not be substituted for belladonna root.

Experiments made with plasters and ointments from belladonna root and scopolia rhizome are not yet completed, but thus far very little difference in their activity has been developed. In order to determine if the camphor in the liniment interferes with the production of symptoms from the use of scopolia liniment, a new series of observations has been commenced which will be the basis of a later report.

To Drs. H. D. Furniss of the Post-Graduate and H. J. Van Wagenen of the St. Mark's Hospital house staff I would acknowledge my indebtedness for efficient assistance in prosecuting this investigation.

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IMMUNIZATION FOR TYPHOID FEVER: A REVIEW.

By H. W. McLAUTHLIN, M.D.,

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THE efforts made during the past few years to produce artificial immunity from typhoid fever must be considered as especially far reaching in importance. In 1892 the experiments of Brieger, Kitasato and Wasserman on animals were reported. They grew typhoid bacilli in thymus bouillon for three days. They claimed that an antitoxic body in the thymus cells reduced the virulence of the typhoid poison so that after heating the thymus culture to 60° C. for fifteen minutes it became sufficiently attenuated to be safe to use in man and at the

same time sufficiently protective. They injected six mice with 0.5 c.c. of this specially-prepared thymus bouillon. The animals thus treated did not show any signs of illness. After twelve days the six protected and three control mice were inoculated in the peritoneal cavity with 0.3 c.c. of the most virulent typhoid bouillon. The three control animals died in fourteen hours. The protected animals all survived without signs of sickness.

Passing the work of the other investigators in this line, special interest centers in the work of Dr. A. E. Wright and others, of the English army, teachers in the army medical school at Netley, particularly because of the favorable opportunity of these men to test the value of the inoculations on British soldiers in India and South Africa.

In the *British Medical Journal* of January 30, 1897, and also in the *Lancet*, the first extended paper of Dr. Wright on this subject appeared. In it he said that the vaccination experiments against cholera by Haffkine prompted him and his associates to take up the question of establishing artificial immunity from typhoid. His first published vaccinations were made in July and August, 1896. Regarding the principles of the proposed method, he said that all vaccination has for its object, first, to achieve a degree of immunity equal to or greater than that which comes from an actual attack of the disease, and second, to obtain this immunity without risk to life or health. The first can be obtained as yet only by inoculation with the micro-organisms of the particular disease or their products. The second can be accomplished in a number of ways; as, for example, in vaccination against smallpox, by inoculating with micro-organisms which have lost their virulence for man by passing through certain animals; or, as in Pasteur's vaccination against anthrax, in which use is made of artificially-attenuated micro-organisms; or, thirdly, by using measured quantities of dead, but still poisonous micro-organisms. The latter method was adopted by Professor Wright.

His vaccine consisted of a pure cultivation of typhoid bacilli in broth or agar-agar. When time was allowed for the material to be obtained from Netley, it consisted of lysolized cultures (1 per cent. lysol), four weeks old, of virulent typhoid bacilli. This pure cultivation, with its contained toxins, is sterilized by subjecting it to a temperature of 60° C., thus destroying the typhoid bacilli, or possibly in some cases so lowering their vitality that they cannot produce fresh poison, or can produce it only in such quantities and of such a character that it cannot prove fatal when introduced into the tissues of man.

The vaccine is thus not a serum nor a lymph. Living animals are not at any stage required to produce it and the only use made of animals is to test the strength of the fluid to insure the proper standard.

In general characteristics the vaccine corresponds closely to that used by Haffkine in his cholera inoculations. The strength of the vaccine varies with the number and the virulence of the bacilli it contains; so the dose has varied, but seems to have been between 0.3 and 1 c.c. The latter makes a full dose for a man, and represents an amount which would prove fatal to a 350-gram guinea-pig.

Dr. Wright gives the following symptoms as occurring after a person has been inoculated: From a small dose there is locally slight tenderness at the site of the injection (generally the flank). There is a feeling of chilliness two or three hours after the inoculation, with a slight rise of temperature and some restlessness at night. In twenty-four hours the symptoms are gone. From larger doses the local tenderness increases and extends upward to the armpit and downward to the groin. A reddened patch, two to four inches in diameter, appears at the place of injection and red lines of inflammation extend from this up to the armpit. The local symptoms are at their height in twelve hours, still very sensible at twenty-four hours, and are gone in about forty-eight hours. Constitutionally there are usually feelings of faintness or collapse within two or three hours after the injection. Sometimes there is vomiting. The appetite is lost. There is considerable fever and sleep is much disturbed. Within a day or two the symptoms are gone and the patient feels normal. Occasionally a patient looks poorly for two or three weeks. Considerable edema may occur at the site of injection, and in one case it extended to the linea alba in front and downward to the groin. Wright thinks he largely prevents this by administering calcium chloride.

The *British Medical Journal*, January 20, 1900, says editorially: "The patient (after inoculation) passes through what may be called a modified attack of typhoid fever, an attack modified both in degree and in kind. If the bacilli are killed, the reaction, however smart it may be, is usually temporary; if the bacilli are not dead the process is more prolonged and it is probable that the protection is also greater and more prolonged. It is possible that as the process becomes better understood and the necessity for a greater degree of protection becomes evident, the living but modified virus may be more generally used."

Through the courtesy of Dr. Smith, of Littleton, I can add the testimony of a physician who himself took the inoculation, Dr. Charles Peters of the Imperial Yeomanry. In a recent letter he says: "You know there is an antityphoid inoculation on trial now, and this war (South African) will prove it to be good or not, as many of the troops have been inoculated. I had it done. I thought it would be worth trying. They injected 1 c.c. into the muscles just above the anterior superior spine of the ileum. In four hours it commenced to work. At first it makes one feel very faint, then causes perspiration and

high temperature (102°-104° F.) with a frightful headache. Some it makes vomit, so, of course, I had my share of that. This lasts twenty-four to thirty-six hours and, in the meanwhile, the whole of the side becomes very sore. It sets up an acute cellulitis at the site of the injection and a lymphangitis extending to the axilla and groin, where an adenitis is developed. In my case it did not spread to the groin. Then one gets well very quickly and the side is quite normal in three or four days. I can assure you it is not pleasant at the time, but, if it lessens typhoid or prevents it, it is worth the day or two of illness, at least so I think now; but if I had to take it again I might think otherwise."

The blood of patients who have submitted to the typhoid vaccination becomes poisonous in some measure to the typhoid bacillus, as it immobilizes and agglutinates them, i. e., it responds to Widal's test. Wright considers that this agglutination power of the blood is a trustworthy criterion of the immunity of the person who furnishes it. He admits, however, that before this can be called proven, the fact must be explained that persons who die from typhoid show the specific agglutination reaction in exactly the same way as patients who recover from this disease. He believes that it may be assumed that every animal is working its way up to the acquirement of immunity from the moment of infection up to the time its struggle with the disease finally ceases. A degree of immunity which would amply ward off a fatal issue if given on the first day of the disease may be of no avail if acquired later in the attack. So in typhoid the agglutinating power of the blood may be acquired too late in the attack to save the patient's life. The agglutinating power of the blood acquired from an attack of typhoid is not greater than that acquired from an inoculation with dead typhoid bacilli.

The blood of an inoculated person is also tested to see how far it can be diluted and preserve its agglutination powers. The sedimentation units are then called preventive units. For example, a blood which shows the agglutination in a tenfold dilution is said to contain one preventive unit, and so on.

As to risk from inoculations, it is claimed that as the bacteria employed are dead, and so are thus incapable of generating new poison in the system, the injection of small and measured amounts of these dead bacterial cultivations would risk life no more than the injection of a medicinal dose of morphine. Haffkine has made nearly 100,000 anticholera inoculations without a serious symptom.

As to probable duration of immunity, with typhoid as with smallpox vaccination the immunity conferred probably diminishes more or less rapidly. Wright thinks that if, as seems probable, the duration of immunity will be told by a series of blood examinations, it would seem that immunity would last at least a few years and thus carry a young adult over the period of

greatest susceptibility. Dr. Foulerton, in the *Middlesex Hospital Journal*, claims to have examined the blood of nine people two years after inoculation and in four out of nine cases it showed a definite agglutinative reaction. The *British Medical Journal*, January, 1900, says editorially: "Evidence has been established that the effect of inoculation is prolonged for eighteen to twenty-four months."

Sir Dyce Duckworth, lecturer of medicine at St. Bartholomew's Hospital, in an interesting report of two cases which he inoculated successfully with Wright's vaccine, says that a second inoculation, ten or twelve days after the first, is desirable to secure the full benefit of the vaccine.

In reviewing the literature on this subject, one finds the reports few in number and often incomplete, because no subsequent blood tests are given. For instance, we find that in 1896 eighteen medical officers, either in or preparing for service in India, were inoculated. Two hundred and fifty men volunteered at Bangalore in December, 1898. In March, 1899, there were 420 men inoculated at Lucknow, and so on. The following reports are from Wright. Of 200 attendants at the Maidstone Hospital, 95 were inoculated. During the subsequent epidemic of typhoid there none of these men were ill. Of the 105 who refused to be vaccinated, 19 contracted typhoid. At Khartoum six subalterns consented to be vaccinated. The remaining two refused and said they would take chances. One of the latter died and the other was very ill from typhoid. None of those inoculated took the disease.

A detailed account of the results of typhoid inoculations in the Indian British army, by Wright, appeared in the *Lancet* and also in the *British Medical Journal* in January, 1900. The statistics are as follows:

TYPHOID AMONG INOCULATED AND UNINOCULATED.	
Period of observation.....	About 9 months
Total number of men under observation.....	11,295
Number inoculated.....	2,835
Number not inoculated.....	8,460
Number of cases of typhoid among inoculated.....	27 or 0.95 per cent.
Number of cases of typhoid among uninoculated.....	213 or 2.5 per cent.
Number of deaths from typhoid among inoculated.....	5 or 0.2 per cent.
Number of deaths from typhoid among uninoculated.....	23 or 0.34 per cent.

Of the inoculated cases who had typhoid, five were admitted to the hospital within 19 days after inoculation. Two of these died.

In connection with these figures, Wright calls attention to the conditions under which the inoculations were performed. They were made in the latter part of 1898 and early in 1899, while he was serving on the Indian Plague Commission. As the Commissioners journeyed from place to place, the soldiers were told of the supposed advantages of the inoculations, and volunteers were called for. The younger men and those newly arrived were especially advised to protect themselves, and these were the ones who usually took the inoculations. Those who considered themselves safe on account of age or a

previous attack were disposed to take chances. As sufficient vaccine could not be prepared before they left England, it had to be prepared *en route*. The bottles of vaccine had to be repeatedly opened in order to withdraw material when needed. Guinea-pigs, for standardizing the vaccine, had to be carried about from place to place, to keep them under observation. As an incubator could not be carried about with them, to prove the continued sterility of the vaccine, the latter was sterilized at 60° C. previous to making each new series of inoculations. Wright considers it possible that some of the vaccine was thus weakened by repeated sterilization. In no case was it possible to make two successive inoculations. The doses were always such as to produce fairly severe reaction in the men. The necessary statistics after the inoculation were difficult to obtain, owing to frequent changes in the stations of the men. In certain cases the inoculations were taken in the actual presence of a typhoid epidemic, and some of the men were undoubtedly incubating the disease at the time they were inoculated.

These statistics, moreover, do not include officers, as no accurate statistics were available in their case. Wright thinks, however, that several hundred inoculations have occurred among the subalterns alone. Among these only five cases of typhoid, all said to have been mild, have come to his knowledge. In closing this article on results he says: "Even assuming that no greater protection could be conferred in the future than that which appears to have been conferred in these preliminary inoculations, the result obtained would, in the aggregate, be a significant one. Taking the figures as they stand in the summary of the table, and calculating on the figures 1800 and 460, which represent in round numbers the average number of cases and deaths from enteric fever, in the British army in India, as deduced from the figures of the last three years, there would, on the assumption that the whole army, or the susceptible portion of it, were inoculated, be an annual saving of over 1000 cases of enteric fever and of nearly 200 lives."

Curiously enough, there have been numerous reports from India to the effect that the anti-typhoid inoculation also confers a certain amount of protection against malarial fever. Regarding this, Wright says that the only record he has bearing on it is that of one regiment. The question was asked each man if he had had malaria before or after the inoculation. Of 121 men who stated that they had had malaria before the inoculation, 111 were entirely free from it six months after, when the question was asked. The other 10 said that they had been practically free from it. Two men who had never had malaria previous to the inoculation said they had it slightly within the six months after. But this question is of secondary importance.

It is not surprising that the consensus of opinion seems to be that Wright's work has

demonstrated the harmlessness of these inoculations, and also, which is Wright's modest claim, that some degree of protection against typhoid is conferred by them. It is quite possible that changes in the technic of the preparation of the protective material will be necessary. Wright himself admits that there have been uncertainties in the method of standardization which he proposes to deal with later. Fuller statistics are absolutely necessary and especially the following up of the inoculated cases.

Further to quote the *Lancet*: "Wright's results are not enthusiastic. A much larger number must be quoted. But these are sufficiently convincing to make officers willing to take the inoculations and to advise their men to do likewise. We agree with Wright that a certain measure of protection seems to have been conferred. Typhoid has hitherto been the greatest cause of death to British soldiers in peace or war. At the present time a most critical test is being made of the inoculation among troops in active service in South Africa." Also the *British Medical Journal*: "These figures are all in favor of the inoculations. Many of the attacks of typhoid in the inoculated seem to have been comparatively mild, although the fact that the general type of the disease at the time may have been mild must be remembered. The evidence thus far seems to show that the inoculations do exert a distinct effect on typhoid among the troops in India. Let the troops to be sent to South Africa be vaccinated during their period of training, before they go to the seat of war. Officers, nurses and members of the army medical corps, except those who have passed through an attack of typhoid, should be inoculated. Better still, if the treatment can be extended to the rank and file of both regulars and volunteers."

The latest report seen by the writer is a letter from the front, South Africa, and published in England, May 5, 1900. It states that it is still too early to know the results of the antityphoid inoculations in the present campaign.

Frank Billings, M.D., of Chicago, in the *Journal of the American Medical Association* February, 1900, says: "The production of artificial immunity from typhoid fever, as a prophylactic measure, by inoculation with typhoid cultures, has been practised with apparent success. The inoculations, however, are still too few and the results on man too indefinite to allow of positive deductions. Enough has been done to prove the harmlessness of the operation and to encourage a continuance of the practice. Many of the experiments have been weakened by the failure to apply the serum test before and at proper and repeated times after the inoculations."

Our American soldiers in the late military campaign suffered heavily from typhoid. Dr. Victor C. Vaughan, in his recent paper on "Conclusions Reached After a Study of Typhoid Fever Among the American Soldiers in 1898," says: "Every regiment in the United States

service in 1898 developed typhoid fever, and in all about one-fifth of all the soldiers in the national encampments. The deaths from typhoid were more than 80 per cent. of the total deaths. One who has lived in a camp in which typhoid fever is prevalent is liable to develop this disease any time within eight weeks after leaving such camp."

It is greatly to be hoped that the official reports of the results of the inoculations in South Africa may show another stride forward in the praiseworthy efforts to control this great scourge, not only of modern armies, but of young adult life everywhere.

MALARIAL FEVER, WITH SPECIAL REFERENCE TO THE VALUE OF BLOOD EXAMINATIONS; REPORT OF CASES.¹

By HERBERT OLD, M.D.,
OF NORFOLK, VIRGINIA.

It is the contention of the writer in this discussion to limit himself to the practical side of the question. I think all will agree with me that it is of the greatest importance to be able to be positive of the diagnosis of any disease which we are called upon to treat, and that the sooner the diagnosis is made, the better it is for both patient and physician. Though there are so many types of malaria, and though the symptoms in many cases are extremely vague, nevertheless, there is always present in the blood an organism which can be demonstrated by means of the microscope and thus allow one to differentiate malaria from all other diseases. This examination can be made as soon or as late as we desire after taking the specimen of blood, for the plasmodium malarie can be seen either in the fresh or in the dried specimen. In hospitals it is more convenient to examine the fresh specimens; but in private practice I prefer to examine the dried.

The technic I employ is as follows: In my medical bag there are always cover-glasses and a large Hagedorn needle. The lower tip of the ear is cleansed with alcohol, which is allowed to dry thoroughly before the ear is punctured; the cover-glasses are washed with alcohol just before use, wiped dry, and protected from dust; absorbent cotton wrapped around the non-sulphur end of a match and soaked in alcohol gives a sufficient alcohol flame for sterilizing the needle; the puncture is made sufficiently deep to obtain the blood without having to squeeze the ear; the first drop is wiped off, and the second one caught on one of the cover-glasses; the two cover-glasses are placed in contact just long enough for the blood to spread, then drawn rapidly apart, and we thus have two spreads for examination. The spreads are now allowed to dry and then placed in a small tin box, there to remain until I am ready to stain them. In order

to fix the blood before staining, about one teaspoonful of a 40-per-cent. solution of formaldehyde is placed in the bottom of an ordinary cheese-dish; the spreads of blood are placed in a small butter-plate; the plate is then set in the dish; the cover is placed over the dish, and the spreads are thus exposed to the formaldehyde gas for from fifteen to thirty minutes. The spreads are now stained first with a 1-per-cent. aqueous solution of eosin, washed, and finally stained for from one-half to one minute with a 1-per-cent. aqueous solution of methylene blue. Before mounting the spread on a slide it is best to look at it with a low lens of the microscope to see if it is stained blue enough, which can readily be ascertained by noticing the nuclei of the white corpuscles. After the spread has been mounted it is looked at with the 1-12 oil immersion lens. This method can readily be mastered by any one, and I do not think that any one will deny that the finding of the malarial parasite in the blood is very satisfactory; but, as many still claim that it is not at all necessary, I am going to report a few cases in which the diagnosis was made only through such a microscopical examination.

Case I.—Colored female, aged sixteen years. I delivered the patient of a full-term child on September 5, 1899. The puerperium was normal up to the ninth day, when she had a severe chill followed by fever and sweating. I saw the patient the next day, but she said nothing about having had a chill, and, as the temperature and pulse were normal, and as she seemed well in every respect, I told her I would not see her again for three days. On the thirteenth day I saw her and found that the temperature was 103° F.; pulse 115. She then told me of the chill on the ninth day; that she had had another on the eleventh day and had also had one several hours before my present visit. I ordered broken doses of calomel, put her on light diet, and took a specimen of her blood. The blood examination showed large tertian parasites. I put her on quinine and there was no repetition of the chill nor any further fever. I caught from the walls of the room, in test-tubes, ten or fifteen mosquitoes, two of which proved to be *Anopheles*; the rest were of the *Culex* variety.

Case II.—White female, aged twenty-eight years. The patient's youngest child was two months of age; breast-fed. Patient sent for me on June 25, 1900; she complained of her left breast being very painful and said that she had had a severe chill at 10.30 p. m. the day before. She also complained of severe pain in back, head, and lower extremities. Examination showed the left breast to be very painful on pressure; some superficial redness in upper, outer, quadrant, but there was no marked induration, nor was the breast at all nodular. Thinking the breast signs not sufficient to account for the symptoms, unless she had a submammary abscess with absorption of pus, I made a thorough examination. The lungs and heart were nega-

¹ Read at the annual meeting of the Virginia Medical Society, held at Charlottesville, October 24, 1900.

tive; the liver normal; the spleen was slightly enlarged and painful on pressure; the tongue was heavily coated; her bowels had not moved for two days. I took a specimen of blood for examination and put her on broken doses of calomel. The blood examination showed tertian parasites, and I can readily assure you that I was delighted to see them. She was put on quinine and all symptoms quickly disappeared.

Case III.—White female, aged nineteen years; schoolgirl. Since the middle of last June the patient had suffered from constant headache, anorexia and constipation. Patient had not been aware of having had any fever, and had had no chill nor chilly sensation. She went to see a physician, who treated her for torpidity of the liver, but there was no abatement of the symptoms. I saw patient at my office on July 23d. She complained of the symptoms mentioned; her tongue was heavily coated; she was quite pale, whereas she usually had a good color. Knowing that there was much malaria in the suburb where she lived, I took a specimen of her blood. Examination of the blood showed numerous large and small-sized tertian parasites. I put her on quinine and arsenious acid and told her to report to me in one week. At her next visit she said she felt much better, but that she still had the headache off and on. I continued the same treatment and asked her to let me see her again at the end of the week. On August 6th she came to see me, said she felt much improved, and wished to go to Baltimore on a visit. As she was still quite pale and had very little appetite, I took another specimen of her blood. Examination showed small tertian parasites, very few in number. I put her on iron, quinine and arsenic, and told her to go to Baltimore, but to keep up her medicine while there. She returned home the middle of September and told me that she never felt better in her life. She now has a good color and is attending to her studies at school.

Case IV.—This patient, a young white woman, had been suffering from headache, anorexia, and continued fever for two weeks. The temperature went up to 102° and 103° F. in the afternoon. The only signs were a coated tongue and a slightly enlarged spleen. A specimen of blood was taken and the examination showed tertian parasites. There were two sets of these parasites, one, large and pigmented, the other, small; there were also hyaline bodies. As the patient was very susceptible to quinine and had been advised by a physician never to take it, she was put on guaiacuin. The fever now became intermittent, but the continued use of guaiacuin, with the addition of arsenic, succeeded in removing the fever entirely. The fever returned in three weeks, and was again successfully treated by the same medication.

Case V.—Young colored man, farm laborer. The patient gave a history of having had "hot fevers" for several days, accompanied by severe headache. There had been no chill. The day

before the present visit the patient was prostrated while working in the sun. Examination showed coated tongue, spleen slightly enlarged, bowels constipated. The temperature was 100° F. The specimen of blood showed small, intracorpuseular, ring-formed parasites. The patient was immediately sent to a hospital and broken doses of calomel ordered. The fever rose to 105° F. that afternoon. Quinine was administered and the fever disappeared in three days. The patient left the hospital in a short time, returned to work, but did not keep up the treatment as ordered. The fever returned in three weeks; he was put on quinine for a long period, and he never had any return of symptoms.¹

Case VI.—White male, aged four and one-half years. The patient has been delicate since three months of age. Was nursed only seven weeks and then given condensed milk. During his second summer he had a severe case of cerebrospinal meningitis. I saw the child for the first time last May, when he was undergoing a severe attack of pertussis. On June 1st the pertussis became complicated with an attack of acute colitis, which persisted, with quite severe symptoms, until June 30th. I was called to see him in August. The history given was that he had had fever every night for the past week; was listless and would eat nothing; no history of vomiting, chill or chilly sensation. On examination the spleen was found to be enlarged; nothing abnormal was found in chest; tongue was coated and bowels constipated. I put him on calomel and took a specimen of blood. Examination showed small-sized tertian parasites. I also examined his urine, which proved negative. Put patient on quinine and all symptoms readily disappeared.

Case VII.—White female, aged thirteen months; breast-fed. I was called to see this child on September 27, 1900. The father had just recovered from an attack of malaria. The mother said that the child had had diarrhea for the past four days, from eight to nine stools daily, green in color; that the child had fever every night; was very restless and fretful and would nurse only a few minutes at a time. Examination showed a well-nourished child with six teeth; no rosary; chest, negative; spleen, enlarged; no fever; coated tongue; there was no history of vomiting. I ordered calomel in broken doses; ordered nothing but barley-water for thirty-six hours and took a specimen of blood. Examination of blood showed large-sized tertian parasites. I put the child on 2½ grains of quinine, four times a day, for three days; then 2½ grains twice a day, for the next three days, and kept up two grains once a day for ten days. All the symptoms readily disappeared and the baby continues well.

Case VIII.—White male, aged seven and one-half months; breast-fed. This case, in which I only examined the blood, is reported by me

¹ Class IV and V illustrate the value of blood examination in differentiating between malarial fever and typhoid fever.

through the courtesy of Dr. L. T. Royster, who attended the child. Negative family history; child convalescing from pertussis; paroxysms still occurred several times each day. The present illness began April 18, 1900. The child was seen for the first time on April 19th. Examination showed a well-developed and well-nourished child, but who was rather weak from the pertussis. Hygienic surroundings fair; countenance listless; eyes dull; skin dry; pulse 120; temperature 99° F.; respiration 25; tongue dry; anorexia; marked thirst; bowels in good condition; urine in sufficient quantity. Chest, small area of dullness at posterior left base; bronchovesicular breathing; numerous crepitant râles. Afternoon of same day, temperature 103° F.; pulse 160; respiration 48; almost entire lower lobe of left lung was consolidated; paroxysms of cough increased in frequency and force, and after each one there was marked Cheyne-Stokes breathing, which continued for half an hour. On the third and fifth day the temperature rose to 105° F., which was two degrees higher than on the second and fourth days. On the sixth day resolution commenced, the temperature falling to normal. On the afternoon of the seventh day the temperature rose to 105° F. A specimen of blood was now examined and it showed hyaline bodies. Quinine was administered and there was no further rise of temperature.

These are selected cases taken from the record kept of the microscopic examinations made by Dr. Charles R. Grandy and myself. I think they speak for themselves and show of what inestimable value the examination of the blood has been to me.

CLINICAL MEMORANDA.

IS RUBEOLA INFECTION ANTAGONISTIC TO PERTUSSIS INFECTION?

By WILLIAM BYRD YOUNG, A.M., M.D.,
OF BON AIR, TENN.

THE above question was forcibly presented to my mind last winter during a concurrent epidemic of measles and whooping-cough in my town. Not being an expert microscopist nor pathologist, I shall not attempt to present a research from this field, but will simply give my own experience, with some observations by a few of my colleagues in concurrent epidemics of measles and whooping-cough, in conjunction with the theories along this line of some recognized authorities.

During last winter and spring we had the severest epidemics of pertussis and measles in White County that I have ever witnessed. The whooping-cough made its appearance a few weeks previous to the outbreak of measles. Just about the time measles developed in a few of our

families we had under our care, among other cases, four aggravated cases of pertussis in the height of the spasmodic stage. My associate, Dr. H. L. Fancher, and I made the remark one evening, while discussing the two epidemics, that as soon as the four patients mentioned contracted measles there would be four deaths. But to our great surprise not one of the four had a symptom of pertussis after the measles eruption was well developed, and all made an uneventful recovery from both diseases. These were as severe cases of pertussis as one ever sees. Each had almost all the unpleasant symptoms that are found in very aggravated cases during the spasmodic stage—the well-known paroxysms, with the deep purple, almost black, face, the peculiar "crowing" whoop, which in these cases could be heard two blocks away. The vomiting and epistaxis were both very marked. The children (aged from two to four years) would have from fifteen to twenty paroxysms per day. Two of the cases had hemorrhages from the mouth, which I thought came from the throat, with almost every paroxysm.

The question arose, what caused such a sudden cessation of so marked symptoms of the pertussis when it became complicated with measles? Did the germ or toxin of measles destroy or counteract the germ or toxin of the pertussis? Would the marked symptoms of the whooping-cough have ceased in the same way had it been complicated with scarlet fever or some other zymotic disease? Or was it simply a coincidence? I cannot call to mind a single instance in which a child contracted pertussis during, or for some time after, an attack of measles.

Dr. W. A. Hargis of Granville, Tennessee, in a paper on pertussis read before the Upper Cumberland Medical Society last May, reported several cases of whooping-cough during an epidemic of the disease in his town that contracted measles during the worst stage of the pertussis that never had a symptom of the latter disease after they were well broken out. Dr. S. G. Sullivan of Amande, Tennessee, in reporting to the White County Medical Society, May 10, 1900, a concurrent epidemic of measles and pertussis in his neighborhood during the previous winter, spoke of the singularity of the marked cessation of all symptoms of pertussis as soon as the measles rash made its appearance.

It should not be thought incredible that the infection of measles antagonizes the infection of pertussis. There are many instances in which one disease modifies very materially and often eradicates another disease that has previously affected the body. For instance, the members of this Society have all seen old chronic ulcers of the leg, or even on other parts of the body, entirely disappear after the patient had a severe attack of some lingering malady, such as typhoid fever. Dr. A. R. Robinson, Professor of Dermatology in the New York Polyclinic, in a paper read before the Canadian Medical Association in August, 1899, reports a case of cancer of the breast that

¹Read before the White County (Tenn.) Medical Society, Nov. 4, 1900.

entirely disappeared and never returned after the patient recovered from an attack of typhoid fever.

We have all noticed patients, whom we might call chronic consumptives, who expectorate freely mucopurulent sputa every day of their lives, who, when they contract acute lobar pneumonia frequently have a cessation of thick pus expectoration. A few months ago I was called in consultation with Dr. A. F. Richards of Sparta, Tennessee, to see a woman suffering from an attack of acute lobar pneumonia who had had chronic pulmonary tuberculosis for several years and up to the time of the attack of pneumonia was freely throwing off from the lungs a mucopurulent sputum. After the initial chill of the pneumonia the characteristic tuberculous expectorating ceased. Dr. Richards and I were at a loss to account for this, unless the pneumococci in some way have an unfavorable effect on the activity of the tubercle bacilli or mixed infection that accompanies phthisis.

Those of the Society who have been keeping up with the latest developments in regard to the treatment of cancer have observed the remarkable results that Dr. W. B. Coley of New York has reported in the treatment of cancer by the use of the mixed toxins of erysipelas and the bacillus prodigiosus, injected, when possible, directly into the cancerous growth. Dr. Coley read a paper before the New York Academy of Medicine, March 1, 1900, in which he gives the following results of his treatment of a cancer by the mixed toxins. (See MEDICAL NEWS, Vol. 76, p. 57.) "Of the total number of cases treated, eighty-five were round-cell sarcoma, twenty-one spindle-cell, and nine melanotic sarcoma. Of the round-cell variety forty, or less than half, showed more or less improvement and in three the treatment had been successful. On the other hand, of the twenty-one spindle-cell sarcoma, ten had disappeared entirely, and all the remainder had shown marked improvement." Coley cannot account for the actions of the toxins only on the theory of the parasitic origin of cancer.

Other reports from other experimenters could be cited to show that the toxins of erysipelas and of the bacillus prodigiosus affect and, in a large percentage of cancer cases treated by this method, destroy the parasites and neutralize the toxins of the cancer.

When we see how the mixed toxins of these germs antagonize, so to speak, the deadly poison or parasites of a heretofore incurable disease, is it unreasonable to suppose the germs or toxins generated by the attack of measles did not destroy the parasites or neutralize the toxins of pertussis in the concurrent epidemic referred to, especially when we know that the infection of the two diseases begins its work on the same mucous membrane, that is, of the nasal cavities.

Dr. Charles T. McClintock of Detroit, in a paper read before the Mississippi Valley Medical Association, a few years ago, on the subject of "Enzymes and Immunity," speaking of the influence one germ may have over another germ,

says, "That one germ or its products can aid or hinder the work of other germs has long been known, and it has been the dream of many workers that we would ultimately fight disease germs with other germs or their products. It appears as if this dream is about to be fulfilled." Dr. McClintock further says that "Löew and Emmerich report that two cubic centimeters of a solution of an enzyme obtained from the bacillus of green pus will kill two and a half million virulent anthrax germs in five minutes. According to these authors this enzyme rapidly destroys large numbers of the germs of typhoid, diphtheria, plague, etc." Here we have, again, one germ or its products destroying the germ of other diseases.

We would, therefore, conclude that it would be nothing strange or improbable to find that the germs of measles or their products will destroy or neutralize the germs or toxins of pertussis. To say the least, from a careful study of the subject, from the observations of other physicians, and from my own personal experience, it is difficult to believe that the cases above referred to were merely incidental.

COMPLETE TRANSPOSITION OF THE VISCERA.¹

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OF CHICAGO;

PROFESSOR OF PHYSICAL DIAGNOSIS IN THE NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

THE case which I have the pleasure of presenting is one of complete transposition of the viscera, including the lungs. I believe the lungs are transposed for the following reasons: On account of its size and the angle at which the right bronchus is given off, and possibly for other reasons, the percussion sound on the right side in the infraclavicular space is slightly higher in pitch. In the same situation, the normal respiratory murmur is slightly harsher in quality and raised in pitch and the normal vocal resonance is increased. In this case the normal disparity is reversed, seeming to warrant the conclusion that the lungs are transposed.

Congenital anomalies and malformations of the heart have excited the interest of physicians for nearly a hundred years. Peacock, in 1855, was the first to issue a systemic treatise on the subject, attempting to reduce the different forms of irregular development to scientific arrangement, being guided only partly by the period at which the development of the organ becomes arrested or perverted.

In 1875, Rokitsansky of Vienna published a monograph in which he insisted on the importance of studying the anomalies in connection with the different stages of development. Recently Féré has demonstrated that marked modifications in development may be produced in the chick, by injecting pathogenic germs and toxins into eggs undergoing incubation. These experiments show that agents which produce disease during

¹ Read before the Chicago Society of Internal Medicine, November 27, 1900.

extra-uterine life and later during intra-uterine existence give rise to malformations in the earlier phases of existence.

Ballantyne puts it thus; "The same causes are in action in both periods, but when influencing an embryo so far developed as to have specialized organs, the result is disease. When, on the other hand, influencing an embryo in which such specialization has not been carried on to the same extent, the result is a malformation. In the one case the results are pathological; in the other, teratological."

We are probably justified, therefore, in concluding that the causes of congenital diseases and malformations are similar and may be identical. Among internal displacements, that of transposition of the viscera is perhaps the commonest. Dextrocardia may be present without transposition of the viscera, but such cases are rare.

Two hypotheses have been proposed in explanation of this anomaly. Dr. Frazier suggests that the transposition may be due to the subject having been one of twins which were developed from a single ovum and in which dichotomy was complete. Von Baer has found that in a few instances the embryo lies with its left side directed toward the yolk, whereas the right side is normally in this position.

MEDICAL PROGRESS.

Fractures of the Leg.—Better than the time-honored exact reposition under ether with plaster cast, the extension with weights or the constant elastic traction methods is the employment of the following simple apparatus, says N. KAEFER (*Centralbl. f. Chir.*, Jan. 5, 1900), which he has lately brought out. Its parts are two flat, very strong, roughly-corrugated wrought iron braces about 10 c. m. long by 1.8 c. m. wide, slightly elbowed at one end where plays a screw. This screw is turned out of a hexagonal piece of steel so as to have a right and left thread, with a hexagonal piece between them to serve as a nut, for the approximation or separation of the braces. The application of the device is briefly, a carefully and densely applied plaster splint is cut through circularly so as to leave an upper and lower half separated by an interval of perhaps 3 c. m. Over this space is placed the center of the screw and the braces are rapidly fastened to the splint by many layers of plaster bandage. When all is dry the screw is turned so as to part or draw the half-splints together as indicated. The braces are placed laterally, are so strong that one alone is needed. They have the advantage of being adjustable from day to day.

Pharyngeal Adenoids.—The importance of recognizing the presence of pharyngeal adenoids in the young has certainly never been thoroughly appreciated by the ordinary general

practitioner. When we learn that they are responsible for more than one-half of the pathological conditions met with in the ear and that most cases of deaf-mutism are not really congenital, but acquired and due to adenoid vegetations during infancy, the need of more careful investigations into the causes of nasopharyngeal obstructions is readily seen. P. D. KERRISON (*N. Y. Med. Jour.*, Feb. 2, 1901) urges that it is not those cases which present the typical symptoms that are usually neglected, for the diagnosis is then clear, but when only partial obstruction occurs and the symptoms are those of frequent rhinitis, pharyngitis, tracheitis, bronchitis, and mouth-breathing, at least during a part of the day, the underlying cause is liable to be overlooked until the child's development is seriously interfered with or a complication occurs. Careful examinations have shown that the adenoids frequently contain tubercle bacilli, and diphtheria is especially virulent in children with vegetations. The ear complications are, however, the more common serious results secondary to these growths. Lesions of the conducting portion of the auditory apparatus first appear, such as tubal catarrh, otitis media and mastoiditis, but the internal ear may also be affected. Adenoids usually atrophy at puberty, but it is not very uncommon to see people of adult or even middle life suffering from the effects of these growths. Thorough removal is the only rational treatment. A general anesthetic is usually advisable and the adenoids grasped and removed by forceps specially constructed. The site should then be curetted with a Gottstein curette to remove every shred, for adenoids tend to recur if any part is left.

Arsenical Dermatitis.—This condition usually results from a prolonged use of arsenic under a physician's direction or to occupation exposure. An unique case is reported by A. H. OHMANN DUMESNIL (*N. Y. Med. Jour.*, Feb. 2, 1901) in which a woman took over a dram of "Rough on Rats" with suicidal intent. Her stomach was washed out twice within a few hours. On the second day she presented a vesicular and pustular eruption on the hips, face and nose and a small patch of confluent vesicles on either buttock. She complained of a burning sensation and of some itching. The appearance of the eruption after a single toxic dose and the location of the lesion were considered unusual.

Tuberculin Test.—After a wide experience in the use of this test for diagnostic purposes in cases of suspected tuberculosis, J. M. ANDERS (*Internat. Med. Mag.*, Jan., 1901) concludes that it is a very valuable aid. Out of 3638 cases a reaction was obtained in 2185. The number that were clinically doubtful at the time of the injection was 1468 and 70 per cent. of these reacted. It is advised, however, that it should be used in medium-sized doses and only in those instances in which the diagnosis is very doubtful or otherwise impossible.

Oxygen Treatment of Uric-Acid Lesions.—

The presence of an excess of uric acid or its compounds in the blood is supposed to be due to a diminished power of oxidation on the part of the organism, and either a diminution in the proteid food or an increase in the oxygenation process may be induced to counteract the condition. A. C. CROFTAN (*Internat. Med. Mag.*, Jan., 1901) believes that the uric acid is non-toxic, but that the alloxuric bases which are closely allied are very poisonous and depend upon the oxidation power. The metabolic processes resulting in chemical oxidation occurs not only in the blood as it passes through the lungs, but also in all the tissue cells. To raise the oxygenation in the blood one may improve the quality of the inspired air or the number and activity of the red blood-cells. Inhalations of oxygen give uniformly good results, especially striking in functional disorders. The gas is procured in cylinders of 50 to 200 gallons at from four to seven cents per gallon. Rubber-bags, holding about five gallons, are filled with the gas which is inhaled by long deep breaths. The séance lasts about five minutes and is repeated daily at first. With this mode of treatment, diet and climate are usually combined if possible.

Skin in Scarlet Fever.—The rash is made up of small puncta, writes J. F. SCHAMBERG (*Proceedings Phil. Path. Soc.*, Jan., 1901), surrounded by erythematous areolæ, which may coalesce or leave normal areas of skin between. The puncta are often about the hair-follicles, or there may be a general "goose-flesh" papulation. Minute discrete vesicles are common, and sometimes become so large and abundant as to deceive the physician. The area between the puncta represents an acute dermatitis, the goose-flesh results from an infiltration in and about the hair-follicles, and the vesicles originate in the follicles or in the deeper layers of the rete, contain a turbid leucocytic fluid, and dry up to form powdery scales on the surface. The puncta are either infiltrated hair-follicles or dilated blood-vessels with intense perivascular exudation.

Congenital Stenosis of the Pylorus in Sucklings.—In a recent monograph GILLOT (*Thèse de Paris*, 1900) has gone over the literature of the subject and reaches some interesting conclusions, regarding this condition, based on critical consideration of the thirty-three cases which he was able to gather. Even some of these cases, the author finds, are not entirely reliable. In the first the affection is admittedly very rare, and only diagnosticated on the post-mortem-table in the majority of cases. Nevertheless Gillot believes that closer study of the symptomatology will enable and facilitate diagnosis in the future. The vomiting, constipation, and rapid wasting, notwithstanding irreproachable feeding, are considered the cardinal symptoms upon which a diagnosis may be reached. The condition is considered under

two heads, that relating to organic stricture of the pylorus and that merely due to spasmodic contraction of the pyloric ring. All of the cases which have been treated medicinally have succumbed; therefore, the author urges gastro-enterostomy as a promising and logical treatment.

Perineorrhaphy.—H. FRITSCH (*Centralbl. f. Gynak.*, Jan. 12, 1900) makes the following points regarding this operation. Two principals are vital: (1) Remove no tissue if possible, sacrifice nothing while in the old sense "freshening" the wound, but rather divide so as to approximate the proper parts each to each; (2) unite with accuracy the torn ends of the sphincter. The first-named goal is easy to attain in recent cases, when the freshly-lacerated tissue can still be brought together and is in itself scar-free; but when the tear has existed some time, and especially when one or more operative attempts at repair have failed, the amount of cicatricial tissue is so considerable that the work becomes at once difficult. The vagina and rectum are often adherent and the external sphincter reduced to a functionless semi-circular muscular band. The two viscera must at first be freed, each from the other, then the rectum sutured, next the intervening connective tissue and, finally, the vagina with the skin. Often the sphincter will be found so contracted that the little finger can scarcely be passed into it, and it forms a barrier for gas, mucus and feces. These collect in the ampullæ recti above, also contracted by disuse, and soon force the wound open again completely or partially or, invading the new perineum, cause fistula. For such cases at the time of the operation a rubber tube wrapped with gauze may be inserted through the anus to act as a vent. Simon has suggested and the writer has tried division of the sphincter in the middle line posteriorly toward the sacrum as a preliminary step in the operation, but results in a painful granulating wound. Hence the author now divides the sphincter after the plastic work is completed subcutaneously. The results show that function returns as well as it does after fistula-in-ano operations. For the deep sutures non-absorbable material is recommended.

Complete and Immediate Withdrawal of Drug in a Cocaine Habitue.—GEORGE WILLIAM NORRIS (*Phila. Med. Jour.*, Feb. 9, 1901) reports the case of a dentist, aged thirty years, who had been using cocaine for ten months. At first he had used the drug locally for hemorrhoids, but after the cessation of the pain he still continued to use the drug by hypodermatic injection in gradually-increasing doses, until his average was sixteen grains a day. Insomnia was constant unless he took cocaine in small repeated doses. He had hallucinations of hearing, and finally, becoming alarmed at his condition, sought medical advice. The cocaine was completely and immediately withdrawn. He was given strychnine sulphate, grain $\frac{1}{30}$, every fourth hour, and sulfonal,

grains 20, repeated in two hours. During the first night the patient slept fairly well, and on the second he required no hypnotic whatever. He felt well and had no craving for the drug. The interesting points are: (1) That sudden and entire withdrawal of the cocaine after long-continued use in large doses required no more active therapeutic substitution without producing physical effect; (2) that the patient after the first twelve hours had little craving, but remained quietly in bed without suffering any of the agonies usually experienced on the discontinuance of a long-established drug-habit. The writer also tabulates the following facts concerning acute and chronic cocaine intoxication: (1) Cocainism is the most insidious of all drug-habits. The use of the drug being unaccompanied by disagreeable after-effects, the vice is readily and rapidly established; (2) cocainism is occasionally acquired by the local use of the drug in diseases of the nose and throat, teeth, etc., but more often as a substitute for opium or alcohol; (3) cocaine is eventually tolerated by the system in huge doses; (4) a relatively large number of habitués are found in the medical and dental professions; (5) the continued indulgence in cocaine invariably, and usually soon, leads to marasmus, with mental, moral, and nervous degeneration; (6) the smallest fatal dose on record is $\frac{1}{8}$ grain hypodermatically; (7) while many cases of acute intoxication are being continually reported, there are relatively few fatal cases, the majority of such being the result of large doses injected into the urethra and bladder; (8) the amount of cocaine sold yearly is rapidly increasing, and its self-prescribed use among the laity and lower classes becoming proportionately more frequent.

Sterilization of Catheters.—M. W. HERMAN (*Centrabl. f. Chir.*, Jan. 19, 1901) has found that silk catheters may be boiled without damage in a solution of ammonium sulphate, precisely after the method of Elsberg for boiling catgut. The smoothness of their inner and outer coats, their elasticity and their general wearing qualities are not affected by boiling continuously or interruptedly. The catheters may be taken directly out of the solution and used, without apparent damage to the urethra by chemical irritation. The author has found the same method adequate for sterilizing Nélaton's catheters, elastic sounds, ball-sounds, filiform bougies and similar instruments.

Syphilis and Exophthalmic Goiter.—R. ABRAHAM (*Phila. Med. Jour.*, Feb. 9, 1901) reports in detail the cases of three women in each of whom syphilitic symptoms were followed by undoubted symptoms of exophthalmic goiter. All symptoms, both of the syphilis and of the exophthalmic goiter, disappeared as the result of vigorous antisiphilitic treatment. The writer believes that syphilis was the etiological factor in these cases of Basedow's disease, and from these cases summarizes the following conclusions: (1) The occurrence of exophthalmic

goiter in three undoubted syphilitics cannot be regarded as either accident or coincident; (2) the old dictum which relegates the origin of exophthalmic goiter to a perturbation or disturbance in the cervical sympathetic system should receive attention only after the existence of syphilis, present or past, be absolutely excluded; (3) those cases which yield to mercury or the iodides should be favorably looked upon as being of syphilitic origin; (4) cases in which all the orthodox remedies fail should be put to the test of specific treatment; (5) cases which are characterized by gangrene of the extremities, various pigmentation of the skin, nocturnal headaches, or other suspicious luetic symptoms, should receive the benefit of specific remedies.

Peaceful Narcosis.—For the acquiring of peaceful and regular breathing under narcosis C. HOFMANN (*Centrabl. f. Chir.*, Jan. 19, 1901) says the following points must be observed: It is an error to confide narcosis to an inexperienced person. A competent assistant is the only one who should have this in charge, whether chloroform or ether be used the drop-by-drop method upon an Esmarch inhaler will be found best, and, by beginning very slowly and evenly, almost all the unfavorable signs will disappear. A small dose of morphine about an hour before the narcosis is advisable.

Post-operative Hernia.—After reporting in detail six cases of post-operative hernia, illustrating the conditions found in this class of hernia and the steps of the operation for their cure, and discussing the conditions which predispose to the development of post-operative hernia and the measures which should be used to minimize these factors at the time of the operation, IRVING S. HAYNES (*Phila. Med. Jour.*, Feb. 9, 1901) gives a few practical directions for the radical or operative treatment of this condition: (1) Make the incisions on each side of the old scar in healthy skin, even though a large segment must be excised; (2) look for and recognize the various muscular or fascial planes at a distance from their involvement in the scar, then incise the layer near the scar, but in normal tissue; (3) divide the peritoneum far enough from the cicatrix, so that its normal features are easily recognized; (4) severe adhesions of the hernial sac to viscera or omentum, between ligatures when necessary; (5) an omental stump is to be covered up by rolling it into the omentum and keeping it there by a running suture of free catgut; bare surfaces of intestine should be covered by bringing the peritoneal coats together. Subsequent adhesions are thus prevented; (6) close the wound with chromic catgut. It is taken for granted that all oozing has been arrested. The patient should rest in bed for three weeks afterward, if possible.

Tracheotomy for Foreign Body.—H. MILTON (*Lancet*, Jan. 26, 1900) narrates the history of a case of foreign body in the bronchus removed by intrathoracic tracheotomy, as follows: The forty-year-old patient had undergone trache-

otomy of a syphilitic cicatricial stenosis of the larynx some years before his readmission. The curved silver tube had loosened gradually from the collar and then fallen into the trachea. When admitted the man did not show urgent symptoms. Attempts to reach the tube through the tracheotomy opening failed. The signs of fetid bronchitis developed and operation was determined on. Chloroform anesthesia was adopted. The muscles and tissues at the pre-tracheal notch were freed and, with the finger, protecting the great vessels, the sternum was divided from end to end and its halves separated for two inches. By retracting the great vessels and drawing the trachea upward, it was possible to open it just over the bifurcation. The tube was then withdrawn. The septic condition caused a bronchitis, then pneumonia and abscess of the anterior mediastinum. Death followed. The author thinks a subperiosteal ablation of the manubrium sterni would have afforded a better drainage, although the sepsis already present was the fatal element in this case, which is his second.

Gastric Perforation.—Pain in the thoracic parietes situated in the scapular, subscapular or interscapular regions, observes J. L. FAURE (*Semaine Médicale*, Jan. 23, 1900), is a very frequent accompaniment of intra-abdominal and sub-diaphragmatic lesion. The presence of this pain, though itself of the type of *referred pain*, is very important and suggests the abdominal contents as the true underlying source. It is consequently urgently necessary at the onset of other signs of visceral disease below the diaphragm to ascertain whether these high-seated pains were long antecedent to, immediately coincident with or distinctly subsequent upon the other symptoms. The writer says that the most frequent process causing this pain is a perforation of a gastric ulcer, which seems prone to refer its pain to the interscapular region, near the midline. Hence in the presence of it, concomitant or subsequent to other signs, exploration of the stomach through the epigastrium is at once indicated.

THERAPEUTIC HINTS.

Cerebrospinal Meningitis.—Depletion is to be condemned, says F. B. MAYNARD (*Albany Med. Annals*, Nov., 1900), as the homogenetic function of the body is largely suspended. The cold pack is most valuable, the patient being stripped and placed in a twice-folded, wet sheet, with his head on an ice-bag, two-thirds full of water and crushed ice. The constipation yields to calomel. Potassium bromide is the best routine drug, with potassium iodide to promote absorption of the exudate, and alcohol and morphine as indicated. Lumbar puncture is of no therapeutic value, the antistreptococcus serum may prevent

the exudation, becoming purulent, and Credé ointment may prove of similar value. The latter, however, requires twenty minutes' friction to insure absorption, and this would not be possible on account of the intense hyperesthesia caused by the disease.

Exercise in Tuberculosis.—PARKER MURPHY (*Albany Med. Annals*, Nov., 1900) instructs his patients to breathe deeply, and, when the fever declines, to perform extension movements, slowly raising the arms to the horizontal, then over the head until the hands meet, at the same time slowly and deeply inspiring and expiring. All the exercises to increase the lung cavity must be coincident with deep breathing. The importance of expanding and revivifying as soon as possible a lung the nutrition of which is depressed can hardly be overestimated.

Tuberculous Spondylitis.—Forcible correction of deformity, writes A. C. WIENER, (*Medicine*, Feb., 1901), is indicated only in recent cases. The reflex spasm yields soonest to extension in bed, then the patient can be gotten up and with an extension apparatus can be out-of-doors. A little weight at night relieves pain and favors sleep. In paraplegia, laminectomy is indicated only in those rare cases of sudden development of the kyphos with paralysis. The gravitation abscess is best not opened and drained, as it forms a persistent sinus, but about once or twice a week the fluid may be withdrawn by a trocar, and carbolic acid, from 6 to 15 drops of a 95-per-cent. solution slowly injected.

Nephritis.—To encourage diaphoresis in acute nephritis JOHN PERRIER (*Cleveland Med. Gaz.*, Feb., 1901) puts patients to bed between woollen blankets, and gives hot drinks of lithia, lemonade or plain water; if there is fever add liq. ammon. acetat. and aconite or veratrum viride. Make diet of bland, nutritious liquids, and open bowels with saline cathartics in hot concentrated solution. In severe cases the hot-air bath, with a lamp and tin pipe arranged to make hot air pass beneath the bedclothing, may be of benefit. The nausea and vomiting usually respond to fluid diet and frequent, small doses of hot water, carbonated waters, cracked ice, bismuth and morphine, or to sinapisms over the epigastrium. For suppression of urine apply linseed-meal poultices containing mustard, to loins every four hours. Where uremia is threatened the hot pack, and for convulsions, chloroform, are indicated, and if the heart is full and strong pilocarpine is good. When all other means fail, the subcutaneous injection of normal salt solution, about 1 liter (one quart) every 6 to 12 hours, is most valuable, or it may be given by high enema. The most effective cathartics in uremia are elaterium or croton oil in small dose frequently repeated, and combined with calomel. As improvement begins, give farinaceous foods and a tonic of quinine or other bitter, with iron for anemia. Avoid meats and alcoholic stimulants.

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WHY IS THERE NO DOCTOR?

VICE and its henchman are in deep waters and the wave of reform threatens to sweep many a well-anchored institution in this city. We have hitherto had amateur reforms, most excellent and virtuous, by self-appointed committees of one, by churches and by moralists, that have simply raked the seeds of iniquity out of their hot-beds and sown them a little more widely over the whole city. But we have hopes that the Committee of Fifteen will accomplish something more by its methods than inciting the organization of specially sensational raids to fill yellow journalism's columns.

There is but one trace of the amateur in the Committee's make-up, in that it dispenses with the services of one of the most important classes of citizen, almost the only one that can contribute a scientific element to some of the most intricate phases of the investigation, namely, the physician. There is no expert medical man on the Committee, and if the reform, from the aspect of the social question, at least, is to be anything more fundamental than the periodic outburst of righteous indignation in the past, it must go deeper and be placed on a physically scientific as well as moral basis. We therefore commend the action of the

New York County Medical Society in the proposed appointment of a committee to investigate the medical features of the social evil of this city.

It is comparatively simple to arouse public sentiment; but public sentiment is a drowsy watcher and quickly falls asleep. It is easy to chase off the birds of prey; but the vultures that hover over the city's sins are keen-eyed and hungry, and experience has shown that after each clamorous reform they have stealthily and silently come back to their pickings in greater number than before.

Many moralists seem to be content when they have closed the gambling-houses and places of prostitution, and made laws to annoy their proprietors; but reform, scientific reform must go deeper. The question comes back to one of a physiological and psychological basis which a man with a wide medical experience can best understand.

Perhaps the Committee of Fifteen have felt that the presence of a physician would only dampen their ardor by forcing them to a pessimistic realization of the situation. If that is the reason for their having no doctor among their number, they cannot have analyzed the social question very carefully.

It is true, a physician understands, as no other man can, that vice cannot be stamped out like smallpox by a vigilance committee. He realizes that the sexual appetite is a normal one that demands gratification; but he knows, to the very dregs, the cup of bitterness, the loathsome sickness, the diseased offspring, the premature death and the misery of home life that come from the traffic of prostitution as it has existed for years in New York.

The terrible drain on the community's health that is caused by the protection of vice in this city is enough to demand the presence of a physician on the Committee. The moral question, from the ethical standpoint, is almost trivial compared with the grave physical and economic problems of the question, and we believe that the Committee of Fifteen is facing these wisely and well, but we would be glad to know that it had the benefit of the technical knowledge of a trained medical man.

THE BACTERIA CONCERNED IN THE DEVELOPMENT OF BRONCHITIS.

Up to the present time it must be admitted that our knowledge of the bacteriology of bronchitis has, on the whole, been extremely meagre. Although the subject of considerable investiga-

tion in the past, the etiological significance of the bacteria ordinarily encountered in bronchitic secretion seems less clear than many would suppose, even at the present day. The problem of the infective nature of bronchitis has been so closely linked with that of the bacteriology of the normal air-passages that the conflicting views entertained regarding the latter have necessarily much influenced the interpretation of experimental studies the object of which was the determination of the micro-organisms capable of inducing inflammation of the bronchi under ordinary conditions.

Whilst there can really exist little doubt in the minds of most students of the subject as to the infective character of bronchitis, either that of primary or secondary nature, some investigations, mainly those of Baumgarten, Hoffmann, and Dürck, were, however, sufficient to invite reconsideration of the question whether or not bacteria were normally present in the bronchi and lungs. For the most part those who have studied this question conclude that the healthy bronchi are usually sterile and that the mass of bacteria commonly present in the air are wholly or in large part, at least, arrested in the passage of the inspired air through the upper air-passages, the removal being mainly effected by the nasal mucous membrane and the adenoid tissue of the pharynx. Such is the opinion of Hildebrandt, Müller and Barlow.

W. T. Ritchie (*Jour. of Path. and Bact.*, Dec., 1900), who has recently gone over the ground in connection with his studies upon the bacteriology of bronchitis, takes this view also. The careful research of Béco published two years ago, it is interesting to note, does show that the normal lung may occasionally contain pneumococci, streptococci and sometimes staphylococci, the very organisms which are usually considered as causative factors in bronchitis. This is, however, admittedly exceptional and scarcely of sufficient importance to modify the general conclusions which Ritchie reaches.

The results of Ritchie's studies were based upon careful bacteriological examinations of the bronchial secretions of living and postmortem material. These show that acute bronchitis is always an infective disease induced by no one specific micro-organism; several varieties of bacteria were practically always demonstrated, conclusively showing that in the later stages, at all events, bronchitis is a mixed infection. It is probable that any one of the pathogenic bacteria

isolated may singly incite bronchitis; whether this is always so in the beginning is difficult to say, but it is probable that only one organism is often alone the primary excitant.

Among the numerous bacteria considered of causative importance may be mentioned the streptococcus, the diplococcus pneumoniae, staphylococci, influenza and diphtheria bacilli, bacillus pyocyaneus, colon bacillus and certain encapsulated bacteria; a wealth of saprophytic micro-organisms were likewise isolated. The most important causal bacteria are the pneumococcus and streptococci. The induction of bronchitis by such an excitant as the diphtheria bacillus without throat lesions is of great interest, as is also the finding of the influenza bacillus as a pathogenic factor in bronchitis independent of epidemic influenza; this is in accord with the observations of Wynekoop, Lartigau, and others who have established its presence in various lesions when the epidemic disease was not prevalent. The association of the bacillus pyocyaneus with acute bronchitis adds another lesion to the increasing list in which this organism has conspicuously figured.

Dr. Ritchie's work is the most important contribution to the bacteriology of bronchitis within recent years; and, although by no means conclusive in all particulars, the results will certainly encourage others to investigate along the same general lines, endeavoring to elaborate the subject from a more critical and less general point of view.

THE SURGICAL TREATMENT OF CHARCOT'S JOINTS.

ARTHROPATHIA TABICA is fortunately of comparatively infrequent occurrence and surgical intervention has not been tried in many cases. In the *Zeitschrift für orthopädische Chirurgie*, Band VII., Heft 2, Ahrens, an assistant of Hoffa in Würzburg, reviews the literature of this subject, and discusses the etiology, pathology, prognosis and treatment of these cases in a thorough manner. He also reports three cases which have come under his care.

He is not inclined to favor operative treatment in these affections as a result of his study of the cases which have been reported in literature. He quotes Ullman's tabulation of eighteen resections of tabetic joints. In ten cases the knee was affected, but in only nine does he believe that the condition was certainly tabes. Out of these nine

cases not a single favorable result is reported. Two of the patients died a short time after operation. In three patients, amputation was necessary later; in one non-union resulted and of the remaining patient no further report is given, which Ahrens considers evidence that the result was not a favorable one. He believes that arthrotomy with drainage is unlikely to give any permanent result and that operative intervention is not indicated except in rare cases in which tuberculosis or a suppurative process supervenes. In the three cases which he reports an orthopedic apparatus giving support to the affected limb was used with decided improvement in all. The patients were able to get about with the apparatus in all of the cases, although previously unable to walk. This leads Ahrens to favor strongly conservative orthopedic treatment in such conditions.

Although the evidence seems to be strong in favor of the conclusions just given, there are still conservative surgeons of good judgment who favor resection and arthrotomy in certain cases of Charcot's joint. Probably too few cases have been reported as yet on which to base any very definite conclusions. At least one or two favorable results have been reported which have escaped Ullman's notice in the tabulation which Ahrens quotes. It is impossible to say just what might be obtained by earlier operation in these cases if an early diagnosis of the condition were possible. In most cases the condition of the patient could hardly be made very much worse even if death resulted.

ECHOES AND NEWS.

NEW YORK.

New York Academy of Medicine.—The order of the stated meeting of the New York Academy of Medicine for March 7, 1901, is as follows: "Discussion on Alcohol and Alcoholism," by Prof. R. T. Chittenden, of Yale University, and "A Discussion of Alcohol as a Food; Its Direct Action on the Nerve-Cell; Its Effects on Americans, and the Aspect of the Law and the Inebriate," by Drs. A. A. Smith, M. Allen Starr, H. M. Biggs, Walter B. James, J. Ewing, Joseph Collins, and others.

New York State Medical Association.—On February 12th the Orange County Medical Association was organized with Dr. M. C. Conner of Middletown, President; Dr. F. W. Dennis of Unionville, Vice-President, and Dr. C. I. Redfield of Middletown, Secretary and Treasurer. Drs. C. Townsend, R. A. Taylor, W. E. Douglas, E. D. Meyers, Joseph B. Hallett, William Evans, Charles A. Canfield, Edward Woodhull,

Henry B. Swartwout and E. A. Nugent were elected members of the various committees required by the By-Laws of the State Association.

The Sullivan County Medical Association was organized on February 10th with the following officers: President, Dr. C. S. Payne, Liberty, N. Y.; First Vice-President, Dr. Frank Howser, Centerville Station, N. Y.; Second Vice-President, Dr. S. W. Wells, Liberty, N. Y.; Secretary, Dr. J. L. C. Whitcomb, Liberty, N. Y.; Treasurer, Dr. C. W. Piper, Wurtsboro, N. Y.

New York Skin and Cancer Hospital.—The Governors of the New York Skin and Cancer Hospital announce the following course of clinical lectures on Syphilis, by members of the visiting and consulting staffs, on Wednesday, at 4.15 p. m.: March 6th—Syphilis as a Disease; Modes of Infection; Extra-genital Syphilis, by L. Duncan Bulkley, M.D. March 13th—Skin Manifestations of Syphilis, by L. Duncan Bulkley, M.D. March 20th—Infantile Syphilis, by A. Jacobi, M.D. March 27th—Syphilis of the Mouth, Nose, Throat and Larynx, by D. Bryson Delavan, M.D. April 3d—Syphilis of the Eye and Ear, by David Webster, M.D. April 10th—Syphilis of the Nervous System, by Edward D. Fisher, M.D. April 17th—Syphilis of Internal Organs, by Edward G. Janeway, M.D. April 24th—Syphilis of the Bones and Surgical Relations of Syphilis, by Willy Meyer, M.D. May 1st—Synopsis, Conclusions, and Treatment of Syphilis, by L. Duncan Bulkley, M.D.

The Hospital has just received a second \$5,000 from the heirs of Emily A. Watson, of New York, to endow another free bed.

Sanitary Water Patrol.—The Committee on Public Health of the Medical Society of the County of Kings has just completed a report of its investigation of Brooklyn's water supply. After receiving the report, the Society followed out its recommendations by adopting resolutions recognizing that certain sources of the borough's water supply were a menace to health and urging the Department of Health and of Water Supply to establish a sanitary patrol of the whole watershed and to construct a sand filtration plant. The committee reported that Brooklyn's water supply is "primarily a good, clean water of excellent character," obtained from surface ponds and streams and from driven wells. Analysis shows that pollution increases gradually from east to west and reaches its maximum at Springfield and at Baisley's ponds. The Department of Water Supply assured the committee that these two sources have been shut off from use. That drainage from cow and horse stables and vaults pollutes the water supply is shown by analysis, establishing the presence of the bacillus proteus and of the colon bacillus, both of which inhabit the intestinal canal of men and of many domestic animals. The biologist of the department, Dr. Whipple, reported

that, although the water was still polluted, there was an improvement since 1898. The report says the resumption of the patrol system is the only means of assuring a pure water supply for large cities. The report also quotes Water Commissioner Dalton to the effect that with the completion of the Milburn pumping station Brooklyn will be relieved from the danger of a water famine.

New York Eye and Ear Infirmary.—The new "Platt Pavilion," a department of the New York Eye and Ear Infirmary devoted to the reception and care of contagious diseases of the eye, was opened for public inspection last week. The new department has been erected through the generosity of the family of the late Justin A. Bliss. A tablet in the hall of the pavilion reads: "In memory of James N. Platt, by his sister, Evelina C. Bliss, and his nieces, J. Adele Stafford and Ida E. Bliss." The pavilion, which is separated completely from the rest of the infirmary, is a three-story brick structure. It contains at present two public wards, each equipped with six beds. Six single rooms are set aside for the use of patients who pay for accommodations. The building is equipped with the most improved sanitary and mechanical arrangements. It has its own sterilizing and ice-making plants, as well as a small crematory for the destruction of infected material that cannot be sterilized. On the ground floor are a large, well-lighted operating room and rooms for offices and clinics. All the rooms are large and fitted with double sets of blinds, so that any degree of light may be admitted. All the furniture is made of enameled steel or of glass. The beds and chairs are of enameled steel; the table-tops of glass. There is no wooden furniture at all. The building is heated by a new process of pure air passing over coiled heating pipes, and the temperature of each room can be graduated. Provision has been made so that the size of the present building may be increased by an additional two stories. The officials of the infirmary say that it is only a question of a short time when the new addition will be needed. The pavilion as it stands now, so it is said, cost about \$40,000. There is only one other hospital for the care and treatment of contagious ophthalmia in America; that in connection with the Massachusetts Eye and Ear Infirmary of Boston.

PHILADELPHIA.

Medico-Chirurgical College of Philadelphia.—This institution offers a Special Quiz Course for the Preparation of Candidates for the Medical Corps of the United States Army, Navy and Marine Hospital Services, and for State Board and Hospital Examinations.

Ovariectomy in the Eightieth Year.—Dr. Wilmer Krusen reports the removal of cysts of both ovaries from a woman eighty years of age, the patient making a good recovery. The combined weight of the cyst was fifteen pounds. A notable point was their slow growth, the patient having

first noticed the abdominal tumor twenty-six years ago.

Fire at St. Timothy's Hospital.—Fire in the administration building of St. Timothy's Hospital, Roxborough, February 20th, caused a damage estimated at \$1,500. No patients are kept in that building and a panic in the wards of the other buildings was averted by the coolness of the nurses. Two night nurses and a watchman who were sleeping in the building escaped without injury.

Dr. Keen to Travel.—Dr. W. W. Keen has asked for one year's leave of absence from his duties at the Jefferson Medical College in order to take a trip abroad which will probably extend around the world. Dr. Keen will start on his journey immediately after the meeting of American Medical Association in June, and will return to resume his teaching and practice in September, 1902.

Editorial Change.—It is announced that Dr. Francis R. Packard will shortly assume editorial charge of the *American Journal of the Medical Sciences*, succeeding Dr. Alfred Stengel, whose rapidly increasing duties have compelled his resignation. Dr. Packard is so widely known to the profession as a writer and clinician as to insure that the *Journal* will, under his management, continue to acceptably fill its high position as the leader among the monthly medical periodicals.

Typhus Fever in Philadelphia.—Frederick Edwards, who came from England on the "Oceanic," February 20th, and wandered about this city for five days, was found to be suffering from typhus fever when admitted to the Philadelphia Hospital Tuesday. He was at once sent to the Municipal Hospital, the house at which he had been staying was fumigated, and every effort is being made to prevent the spread of the disease. The New York health authorities were at once notified.

Hospital Investigation Demanded.—Attorney Tobin of this city has made a protest to the Speaker of the House against the passage of the bill appropriating State money to the West Penn Hospital of Pittsburgh and asks for a legislative committee to investigate charges which he prefers against the hospital authorities. Mr. Tobin is attorney for the widow of William H. Daley, a Philadelphian, who died in the West Penn Hospital in February, 1900, under circumstances which gave rise to much comment at that time.

Philadelphia Hospital.—Ten additional physicians and surgeons have been added to the staff of the Philadelphia Hospital as a preliminary to making that institution one of the greatest hospitals in the world. The proposition, as approved by the Mayor and Dr. John V. Shoemaker, President of the Board of Charities and Correction, contemplates the establishment of two new public institutions and the entire rebuilding and reorganization of the Philadelphia Hospital. To insure the highest possible standard of professional

efficiency, the managers of the Medico-Chirurgical College, the medical department of the University of Pennsylvania, and the Jefferson Medical College were invited by the Mayor and Dr. Shoemaker to suggest the names of specialists who would properly represent those institutions upon the staff of the hospital. The staff was enlarged so that each college could name two specialists.

Pennsylvania Medical Journal.—Beginning with the March issue certain changes will be inaugurated in the nature of this publication. In the first place, the publication will hereafter be known as the *Medical Bulletin of the University of Pennsylvania*. Secondly, it will contain no advertising matter. Thirdly, the form will be somewhat changed; the pages will be larger and the matter printed in double instead of single column. These constitute the essential alterations. The policy and scope of the magazine will not, however, be affected thereby; it continues to be the official journal of the Medical Department and Departments allied to Medicine of the University of Pennsylvania Medical Society and of the William Pepper Laboratory of Clinical Medicine. Its contents will consist of original articles, complete and carefully prepared digests of the most recent literature upon a subject of practical or scientific importance, alumni notes and book reviews. The liberality of the Board of Trustees alone has made possible these radical changes in the construction of the magazine. The removal from its columns of all advertising matter converts the publication into one of much greater dignity and one much more befitting the Corporation and School it represents. The attention of the subscribers is further called to the fact that, while the proposed *Bulletin* will contain fewer pages, it will in reality contain more original material than has heretofore been furnished.

CHICAGO.

Medico-Legal Relations of Ocular Diseases and Injuries.—At a joint meeting of the Medico-Legal Society of Chicago and the Chicago Ophthalmological and Otological Society, recently held, this subject was discussed.

Damage Suits from the Standpoint of the Ophthalmologist.—Dr. F. C. Hotz discussed the different valuations people put upon the lost eye. He pointed out the different motives for bringing suits and outlined what physicians and lawyers could do to prevent suits of this kind.

Nervous Affections of Eye Caused by Accident.—Dr. Hugh T. Patrick mentioned the most common complaints, their nature, evolution, detection and prognosis. He also dwelt upon the subjective symptoms and objective signs. He pointed out the difficulty of distinguishing hysteria on account of exaggeration and simulation.

Legal Basis of Compensation in Injuries of Eye.—Hon. Joseph E. Gary, Judge of the Superior Court, discussed this phase of the subject. For injuries inflicted through negligence only,

without malice, compensation is the rule at law. Compensation includes not only pecuniary loss, but also physical and mental pain, impaired enjoyment of life, and probable prospects. This rule is uncertain in application, because juries have no guide as to loss, other than pecuniary, except their own judgment. In cases of injury through malice other factors enter into the estimate.

Economic Value of Vision.—Dr. H. V. Wurdemann of Milwaukee, Wis., read a paper on this subject, in which he stated that the earning ability of a bodily function is the only fixed economic factor; visual earning ability can be exactly estimated and is synonymous with full earning ability. He mentioned formulæ for full and visual earning ability. Factors are central visual acuity, visual field, ocular musculature, and ability to compete. Economic and scientific standards for vision were dwelt upon, also the economic limitations of trades. He presented tables and diagrams for mathematical calculation. He stated that pecuniary loss was dependent upon lessened visual powers, the nature of the business, and the age of the individual, and that the economic damage should be made the basis for indemnity. Many examples were given.

Dental Department of the University of Illinois.—The Chicago College of Physicians and Surgeons (Medical Department of the University of Illinois) will soon establish a dental department.

Chicago Lying-In Hospital.—It is reported that the demand for rooms is so great in this institution that the managers contemplate enlarging the building at once. Plans have been prepared and it is expected that the work may be begun in the spring. During the past year 974 patients were treated, and 11,129 visits made.

The Smallpox Situation.—It is said that only 17 new cases of smallpox have occurred during the week. At the close of the previous week there were 44 cases in the isolation hospital; 17 were admitted during the week, and 23 discharged, with no death, 38 remaining under treatment. With one exception the cases are mild. It is announced that the stock of glycerinated vaccine-lymph on hand has ripened sufficiently to make the resumption of vaccination safe.

Clean City Ordinance.—Health Commissioner Reynolds recently stated that ordinary house flies, fleas, mosquitoes and other insects that prey upon man and animals, in addition to rats and mice, are certain carriers of disease. The best way to destroy all of these living pests is to rob them of their food and shelter. Decaying garbage in boxes or on the ground feeds and harbors all of them, hence the speedy collection and prompt destruction of garbage has become within the past year a sanitary necessity that cannot be postponed.

Antitoxin for Diphtheria.—It is estimated that 4,500 lives have been saved in this city during the last five years by the use of the antitoxin treatment in diphtheria cases, according to the

Department of Health. This estimate is reached by comparing the diphtheria death-rate of the five years, 1891-5, before the antitoxin treatment was begun, with that of 1896-1900, computing the number of deaths that might have occurred in proportion to the population in the last period at the percentage rates of the first, and taking the difference between this number and the actual number of deaths. The actual saving of lives thus figured is 4,556, deaths to the number of 8,865 from diphtheria and all croup having been probable, and only 4,309 deaths having occurred. On the money basis of the legislative value of a life, \$5,000, this saving represents the sum of \$22,780,000, and for the year 1900 alone it represents \$5,900,000. These figures may strike the average reader as incredible, but they are an understatement rather than an exaggeration. In the five years the city's antitoxin staff has treated 5,727 cases of diphtheria and croup with antitoxin, of which number only 369 died. The death-rate for the disease in the city in 1891-5 was 11.23 per 10,000 of population, and in 1896-1900 it was 5.45. Against an annual average of 1,482 deaths in the first term, the average in the second is 862.

New Skiagraphic Diagnosis for Renal and Ureteral Surgery.—Dr. G. Kolischer and Dr. L. E. Schmidt presented a paper on this subject before a recent meeting of the Chicago Medical Society. The method consists in passing metal instruments through the ureters to the kidneys and then skiagraphing the same while in position. Numerous skiagraphs were shown to give an insight into the character of the work. In order to find out whether or not injuries to the ureters, pelvis or kidneys could arise, they were obliged to find sounds that were adapted to their purposes. Repeated catheterization of the ureters on cadavers showed complete absence of any traumatism. In order to show the possibilities in this line of investigation the following points were enumerated where this method will oftentimes give the desired information: It will give the exact location of the pelvis of the kidney; the exact course of the ureters; the localization of mechanical obstruction in the ureters; the differential diagnosis of gall-bladder and kidney-stone by the manner in which the sound points; and the scratch marks on the sound will also give information as regards stone.

GENERAL.

Beer Scare and Drinking.—The scare in England about arsenic in beer has done more for the cause of sobriety in a week or two than the combined efforts of all the temperance societies in a number of years.

Land for a Plainfield Hospital.—A plot of land, with 500 feet frontage on Thornton avenue, Plainfield, N. J., valued at \$10,000, was offered last week as a gift to the Board of Governors of Muhlenberg Hospital as a site for the new hospital building, by James E. Martin, of Plainfield.

Medical Society of Missouri Valley.—This Society will meet at Omaha, March 21st. The following program is announced: J. W. Cokenower, M.D., of Des Moines, Ia., "New Rectum and Sigmoid in Colostomy;" E. A. King, M.D., of Blockton, Ia., "Chorea;" H. D. Jerowitz, M.D., of Kansas City, Mo., "Scarlet Fever;" A. B. Somers, M.D., of Omaha, "Ante-Partum Diagnosis;" J. Cameron Anderson, M.D., of Omaha, "Vesico-Vaginal Fistula;" C. H. Wallace, M.D., of St. Joseph, "Primary Perineorrhaphy;" J. W. Kime, M.D., of Fort Dodge, Ia., "Treatment of Tuberculosis;" Daniel Morton, M.D., of St. Joseph, subject not announced; A. L. Wright, M.D., of Carroll, Ia., "Mastoid Infection;" O. B. Campbell, M.D., of St. Joseph, "Intestinal Obstruction;" J. M. Aikin, M.D., of Omaha, "Facial Paralysis;" Millard Langfeld, M.D., of Omaha, "Compensation and Failure of Compensation in Heart Disease;" M. F. Weymann, M.D., of St. Joseph, "Chalazial Tumors;" Inez C. Philbrick, M.D., of Lincoln, "Association in Women of Pelvic and Hepatic Disease;" Emma Warner Demaree, M.D., of Roca, "A Case of Sporadic Cretinism;" D. C. Bryant, M.D., of Omaha, "The Pathological Importance of the Accessory Sinuses of the Nose;" J. E. Summers, Jr., M.D., of Omaha, "Clean Surgery versus Mutilating and Unscientific Obstetric Procedures as Practiced Upon the Viable Unborn Infant;" Chas. C. Allison, M.D., of Omaha, "Some Phases of Puerperal Sepsis;" H. Gifford, M.D., of Omaha, "Another Case of Methyl-Alcohol Poisoning;" H. P. Hamilton, M.D., of Omaha, "A Plastic Operation for Pruritis Ani."

Medical Inquiry on Social Evil.—At the New York County Society Dr. Prince Morrow read a paper on the medical aspects of the social evil. Dr. Morrow said that the attempt to regulate vice in European cities by a system of fees and licenses had not been successful. In Paris, he said, the number of licensed houses had decreased from 250 to 40, while the vice itself had spread and increased.

William H. Baldwin, Jr., chairman of the Committee of Fifteen, said that the idea of eradicating the evil altogether was Utopian and that, in his opinion, a little of hell, within certain restrictions, was to be preferred to a great deal of hell. He was speaking only for himself and not for the committee.

Dr. Frederic R. Sturgis advocated the licensing and regulating of the social evil, and cited the experiment of St. Louis.

James B. Reynolds said that the women in this city were already regulated by the police and that the methods for collecting the tax on vice were much better than those of the Paris police.

The members of the Academy voted to investigate the social evil in this city, and authorized their President, Dr. George B. Fowler, to appoint a committee of seven to do it.

Obituary.—Dr. I. N. Jones, one of the best-known Cincinnati physicians, died of pneumonia in that city on Thursday night last. He was the

Cincinnati physician of the Actors' Fund of America. A widow and two sons survive him.

Dr. Pierce B. Fagin, a pioneer of the State of California, died February 21st. Dr. Fagin laid out the site of the city of Des Moines, Ia., in 1846. He was eighty-two years old.

Dr. S. A. Mercer Given, manager of the Burn Brae Sanitarium at Clifton, Delaware County, died February 23d. Dr. Given assumed the management of the sanitarium, which was founded by his father, soon after his graduation from the University of Pennsylvania in 1887.

Dr. Abbott Hodgman died February 26th at his home, 141 East Thirty-eighth Street, of a complication of diseases. He was born at West Townsend, Mass., on November 15, 1832, and studied at Dartmouth and the New York University Medical Colleges. He was once a staff doctor on Blackwell's Island. Dr. Hodgman had charge of the medical department of the city prisons from 1861 to 1868, and he was a member of the commission appointed in 1884 to investigate the condition of tenement houses. He was a trustee of the Metropolitan Museum of Art and of the New York Savings Bank and a member of the New England Society, the American Medical Association, the New York Academy of Medicine and the New York State Medical Association.

CORRESPONDENCE

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, February 16, 1901.

THE PLAGUE AT HULL—PLAGUE-STRICKEN RATS AT BRISTOL—THE MEDICAL HISTORY OF THE LATE QUEEN—HER MEDICAL ADVISERS—THE PLAGUE AT SYDNEY—GOOD RESULTS FROM HAFFKINE'S PRO-PHYLACTIC SERUM.

THE outbreak of plague at Hull on a steamer which arrived from Alexandria has increased since my description was written for your last letter, but fortunately the energetic precautions of the sanitary authorities have so far prevented any spread of the disease to the town. On January 14th the third and fourth cases were observed on the vessel and the patients were removed to hospital. Four more of the crew were isolated in the hospital. The vessel was removed from the dock to an appointed mooring station and underwent complete fumigation. The whole of the crew, the nursing staff of the hospital, and others who have been exposed to the infection have submitted to Haffkine's prophylactic treatment. The addresses of all persons associated in any way with the ship were obtained and these individuals were kept under daily observation. The vessel has been thoroughly disinfected. It appears that dead rats were discovered on the vessel when it left Alexandria.

Still another attempted invasion of the United Kingdom by plague has occurred at Bristol. A steamer arrived on January 21st from Smyrna

with a cargo of grain. On January 22d it was reported to the Medical Officer of Health that six dead rats had been found in the grain and destroyed by fire. On another being found, it was sent to Dr. Klein for examination. Inoculations showed that the rats had died of plague. When this was discovered most of the cargo had been discharged. Every precaution was then taken. The vessel was kept in the floating harbor and thoroughly disinfected. So far no cases of plague have developed.

The following gossip in relation to what may be called the medical history of the late Queen, though in great part overlooked by the omnivorous press which now eagerly seizes every scrap of information in relation to her Majesty, appears to be quite authentic. Her Majesty's long life cannot altogether be explained by heredity, but was partly the result of careful living. Her mother, the Duchess of Kent, was a firm believer in the medical profession and had her daughter's health very carefully supervised. When the Queen came to the throne the rules laid down for her were carefully followed. Not until some years after her marriage were they relaxed. Later she suffered from indigestion and came under the care of Sir William Jenner, who was for more than thirty years her adviser. His counsels she obeyed with a fidelity remarkable in a woman of such strong and independent mind. Somehow the Queen at first disliked doctors and all the immense mental power of Jenner was required to overcome this feeling. He showed his tact when first called by telling his illustrious patient that he must with all due deference suggest that it would be mere waste of time for him to prescribe unless her Majesty made up her mind to implicitly follow his instructions. Satisfied on this point he asked for several consultations on successive days and laid down rules of life which the Queen followed until her death. He insisted that she should take outdoor exercise, irrespective of weather, and should have not less than seven hours' sleep—eight if possible; that she should never sit in overheated rooms and that her diet should be as simple as the exigencies of her position permitted. Malt liquors and sweet and heavy wines were tabooed. Hence the Queen's favorite beverage was dry champagne, hock, moselle, and in later years old malt whisky and some effervescing water. When Jenner died her Majesty was greatly troubled, but she had at hand another physician, a Scotchman, Dr. James Reid, a pupil of Jenner's who was strongly recommended to the Queen by him. The Queen made Dr. Reid a baronet and showered other honors on him. He was always with the court whether at home or abroad, except for a brief autumn holiday. He married a maid of honor, the Hon. Susan Baring. He is now just over fifty and was resident physician to the Queen for thirty years. He is recognized as a "level-headed, shrewd, cautious and far-seeing man." He has no great faith in drugs, but believes more in hygiene. He is very reserved and there is one subject on which he has never been known to speak—

the health of his royal patient. This reticence no doubt has helped to secure his advancement at court.

A voluminous report on the recent outbreak of bubonic plague in Sydney has been issued by Dr. J. A. Thompson, president of the Board of Health of New South Wales. Between January 19 and August 9, 1900, 303 persons were attacked. The metropolitan area, which has an estimated population of 436,000, including about 4,000 Chinese and a few colored people, alone was affected. Two hundred and ninety-three whites and 10 Chinese were attacked. Four times as many males as females were affected. More than half the cases occurred between the ages of fifteen and thirty-five. There were 103 deaths. Haffkine's prophylactic serum was injected into 10,700 people, of whom 13 developed the plague, but recovered after mild attacks. The Yersin-Roux serum became available on May 13th, but its use did not interfere with the natural course of the epidemic. The following conclusions are drawn as to the mode of infection: (1) The disease was not directly communicated from the sick to the well; (2) it was not communicated—in any important degree, at all events—by mediate channels, such as clothes, household goods, merchandise or excreta; (3) the infection was attached to localities and spread to adjacent ones; (4) it also spread in a fashion which betokened the possibility of transport from a distant focus; (5) in an infected locality cases occurred irregularly in the buildings and showed no special proneness to occur in adjoining houses; (6) when one case occurred amongst the inhabitants of a building, secondary cases rarely followed. Irregularity of incidence on houses was thus accompanied by irregularity of incidence on the inmates; (7) an epizootic disease among rats preceded the first case in man; (8) this epizootic disease was plague; (9) the area over which the epizootic extended was practically coextensive with that in which cases of plague were observed; (10) the epidemic was caused by communication of the disease from rats. As to prevention, Dr. Thompson says: "The best protection against plague lies in sanitary laws persistently and faithfully executed by local authorities during the absence of the disease, and no other general scheme of defence is practicable." However, he lays great stress on the securing of immunity from rats—by preventing their landing and by building houses in such a way and keeping them in such a cleanly condition as to make it difficult for rats to enter or to live if they do enter.

House Physicians Get Out.—After a protracted meeting of the medical staff of the Orange Memorial Hospital and the Board of Managers, February 27th, the staff accepted the resignation of Dr. Frank H. Glazebrook and Dr. Henry P. Merrill, Jr., the two house physicians. The house physicians offered their resignations on Saturday, giving as a reason that they could not longer endure the dictation of the superintendent, Mrs. Mary J. Chambers.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

CANCER AND THE BLOOD—TYPHOID PERFORATION—PENETRATING ABDOMINAL WOUNDS—CRANIECTOMY AND MENINGITIS—RADIOGRAPHY AND PROJECTILES IN THE FACE AND CRANIUM—APPENDICITIS—SPLENIC RUPTURE—PNEUMOTHORAX—CEPHALORACHIDIAN FLUID—POTT'S DISEASE OF THE SPINE.

TUFFIER, at the Société de Chirurgie de Paris, January 9, 1901, said that examination of the blood in doubtful gastric disease is often of the greatest diagnostic importance; sometimes the diagnosis of cancer can be confirmed in the presence of other symptoms and sometimes suggested in their absence. Leucocytosis usually accompanies all forms of infections and is therefore apt to be present in gastric cancer, but unfortunately ulcer of the stomach, if complicated with some infection, will also often give this sign. He cited one case, in which the patient had presented many of the signs of a suppurative perinephritis for some time. A hemodiagnosis was a confirmation of this view, notwithstanding the fact that the temperature had declined. At the operation a large abscess was evacuated at the suspected site. He had also had two other patients in whom a hemodiagnosis was exceedingly valuable in ruling out suspected and in recognizing the actual disease. Hartmann said in the discussion that not only is a quantitative but also a qualitative leucocyte count necessary.

LOISON, in discussing the subject of perforations during the course of enteric fever, said that the diagnosis rests on three facts, pain usually localized, complained of by the victim, a marked change in the temperature and a failing of the force of the pulse. He has in reviewing literature collected ninety records of surgical operation for the perforation. Seventy-four patients had perished. Of the sixteen recoveries, half occurred in the second or third week and the other half at a later period. Twelve of the interventions were done at the exact moment of perforation, the symptoms of which are exactly described. Ten of the operations were after an interval of about twenty-four hours. The results though not yet very good demonstrate that the treatment of intestinal perforation, at the time or later, is surgical. Hartmann, in the discussion, said that the more recent statistics in America were very hopeful of this condition as surgically treated and further showed that the more early and precise the diagnosis the better the prospect of success.

ROCHARD, at the meeting of January 16th, narrated the histories of three cases of penetrating wound of the abdomen in behalf of Anoray. Three others of the six of this author were published in full by him. The fourth was a fatal revolver wound in which surgical intervention had been undertaken too late. The fifth was a knife thrust into the abdomen. The laparotomy which was done at once showed only slight hemorrhage from the epiploon. Prompt and

complete recovery followed. The last case was also a stab, but laterally through the eighth intercostal space through the thorax into the abdomen. A lateral laparotomy showed a penetrating wound of the diaphragm filled with a small hernia of epiploon, another wound in the transverse colon. Both were sutured and recovery followed. In these cases Anoray contented himself with attention to the immediate field and did not eviscerate the intestines. It appears that such a step should always be taken as a precaution. He also had some difficulty in suturing the diaphragmatic wound. Rochard said that the transpleural route is by all means best, because the pneumothorax which results is not troublesome. In dogs he has repeatedly demonstrated that it rapidly disappears.

POIRIER presented an interesting case of fracture of the base of the skull complicated by late meningo-encephalitis and cured by wide craniectomy. While intoxicated the patient, a workman, fell so that the right side of his head struck the ground. He arose and was able to walk home, into his house, but on the stairs reeled and had very severe hemorrhage from his nose and mouth, and loss of consciousness. He was taken to the hospital where three days later at evening an ecchymosis of the right conjunctiva was noted and later of the lids of that side. On the fifth day he thought himself able to return to work, but that afternoon he had to give up and return home on account of an unendurable headache. In the hospital it was suspected that a meningo-encephalitis had begun. Lumbar puncture obtained a turbid, slightly purulent and hemorrhagic fluid confirming the diagnosis. Operation upon the cranial vault was at once determined upon and on each side, with mallet and chisel, trap-doors about five by four centimeters were cut. When the dura was incised much fluid analogous to that from the spinal canal was obtained and other evidences of inflammation discovered. Good toilette of the field was made and efficient drainage established, but the precise site of the fracture was not seen. An entirely satisfactory recovery followed. The bacteriological examination of the fluid obtained in the lumbar puncture showed staphylococcus pyogenes aureus.

TUFFIER in behalf of Mauclair reported two cases of projectiles located in the head, especially about the face and cranial cavity. The apparatus of Contremoulin was employed. In the first patient the penetration was beneath the middle of the zygomatic arch and the bullet was located in and extracted from the orbital cavity. In the second patient the bullet had entered in the left temporal fossa and was recovered in that of the other side, where the radiograph plainly showed it to be. Tuffier himself has seven times succeeded easily with the apparatus of Contremoulin. Twice the bullets were extracranial and five times intracranial. Up to the present thirty-one cases are recorded in which it has been used. Twenty-eight were absolutely and

three were partly correct. The field of use for this instrument is certainly wide.

Alluding to this subject MIGNOW, at the meeting of January 23d, gave the history of a man who three years before treatment had been shot with a pistol in the right side of the head. Since the wound irregular cerebral symptoms had supervened. Radioscopy located the ball exactly and without trouble, it was removed and complete cure followed. The diagnostic value of radiography in such cases is immense.

POIRIER, in defence of the dictum that in the treatment of acute appendicitis it is necessary to operate just as soon as the diagnosis is established, cited his own and his assistants' statistics since 1899, a total of sixty-four cases. That year the number was twenty-six. Of these seven were in the interval, all recovered, and nineteen were in the attack with two deaths, although eight had a general peritonitis. In 1900 in hospital practice he had one interval and nineteen acute operations, without a death. In private practice he had eighteen operations, fourteen recoveries. At least some of the fatalities were ascribed to the disadvantages incident upon work in houses as compared with that in hospitals. Although capable of improvement, this record supports his contention.

LOISON recited the following facts about a case of rupture of the spleen successfully treated by him. August 3, 1898, the man was kicked by a horse in the left side and soon afterward showed signs of visceral damage. Several of the ribs were broken and there were signs of a localized peritonitis pointing, through the subjective symptoms, to lesions of the colon and stomach. At the laparotomy these viscera with the spleen were exposed. Only the spleen was ruptured as shown by the active evacuation of old blood walled off by adhesions. The rent in the viscus did not seem to necessitate splenectomy, so the blood-flow was checked by tamponade. The ultimate outcome was most satisfactory. The patient was seen two years later (in July, 1900) and found to be in excellent health and without symptoms or signs pointing to the splenic damage.

GAILLIARD, at the Société Médicale des Hôpitaux, January 11, 1900, stated that he had recently had a case of fetid pneumothorax which was cured by simple pleurotomy. The twenty-five-year-old woman, without any morbid history, a few days after childbirth was seized with violent pain in the side, cough, dyspnea and bloody expectoration and fetid breath and sputum. At the hospital it was found that she presented all the signs of a right pneumothorax localized on the postero-external aspect of the chest. Exploratory puncture obtained a small amount of hemorrhagic, fetid sero-pus, which contained no pneumococci. For a few days the course of the disease went well, when the onset of urgent signs made a surgical intervention advisable. A simple pleurotomy evacuated a large amount of foul gas, but hardly any fluid. The

urgent symptoms then disappeared, but the signs of the pneumothorax persisted with little change, although the subjective manifestations also improved. Nevertheless the general relief continued and after two months the woman returned to her vocation with only a few functional derangements, otherwise able to follow her duties.

CHAUFFARD in the discussion said that the one point not clear in the case was the source of the fetid pus. He had an analogous case in which at the operation no source of the pus could be seen and at the autopsy it was found to be an interlobular encysted empyema. Very likely a similar localized focus had been the cause of the trouble here.

MONOD, at the meeting of January 18, 1901, discussed the cellular elements found in the cephalorachidean fluid. Vidal, Sicard and Ravout have recently explained the varieties they found in various inflammatory conditions of the meninges, especially the tuberculous forms. Monod had selected patients afflicted with tabes dorsalis and general paralysis. Upon centrifuging the products of lumbar puncture he found various varieties of cellular elements among which the lymphocyte predominated. Of such cells he had seen forty to fifty in the field of an oil immersion. Except in cases of acute and chronic inflammation he had never seen such cells before and he offered the opinion that the meninges react to disease in practically a constant manner of which these cells are a sign. Vidal in the discussion said that he, too, with Sicard, had recently been examining the fluid taken from tabetics and paralytics. In such he had found great hordes of lymphocytes mingled with uninuclear cells. Such he had not yet seen in cases of chronic meningitis. For such researches the technic comprises the withdrawal by lumbar puncture of four cubic centimeters of the fluid, which are received at once into the tube and centrifuged at high speed. The supernatant fluid is then gradually decanted, leaving the deposit in as little fluid as possible. This is then taken up in capillary tubes and transferred to cover-slips where after careful spreading it is stained. The quantity of leucocytes may permit us to distinguish between tuberculous meningitis and acute cephalomeningitis, leptomenigitis and the majority of acute maladies which affect the membranes. Similarly the number of these lymphocytes in the fluid during the course of various organic nervous diseases seem to show only the involvement of the meninges and may, therefore, be of clinical advantage in diagnosing such invasion. Sicard said that he had examined the cerebrospinal fluid in four cases of meningo-myelitis, three of syphilitic and one of unknown origin. In all were found numerous cellular elements whose characters were mainly mononuclear. These facts have the value of permitting the clinician during the life of the patient to examine into the condition of the meninges by such examinations.

TOUCHE said it is essential to recognize in Pott's disease of the spine whether or not there is compression of the nerve-roots, when the disease occurs with a transverse myelitis. The prognosis of the paralysis is the element depending upon such diagnosis. This point cannot be arrived at either at the onset of the disease nor at the advent of the paraplegia by any study of motor and sensory signs. With the decline of the symptoms, however, we may concern ourselves with some satisfaction with the typical or atypical affections of sensation about the proper root area. The best signs, however, are the retention of urine and the state of the reflexes. The reflexes in different individuals seem to depend upon whether or not a pachymeningitis has traveled along certain roots. Hence we can ascertain practically the site and degree to which the roots are involved; especially when the sensory disturbances of the root area are investigated.

RENDU in the discussion said that in at least a certain number of cases paraplegia in the course of a spondylitis may be due to an extramedullary and extraradicular lesion. Its origin may be a small amount of pus which has worked its way into the spinal canal and there set up pressure effects. If it disappears the signs of the pressure also vanish and the paraplegia improves.

SOCIETY PROCEEDINGS

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held January 5, 1901.

The President, John B. Walker, M.D., in the Chair.

Suppurative Appendicitis.—The paper of the evening on this subject was read by Dr. Ramon Guiteras. He said that as soon as the inflammation in the appendix exhibits a tendency to the formation of pus, the treatment of the disease is surgical, not medical. If the pain and tenderness are not severe, the temperature not high, and the pulse reasonably good, an ice-bag may be employed during the first twenty-four hours. If the temperature and pulse become more normal the attack may be considered over for the time being. If on the third or fourth day of an attack there is still disturbance of temperature and pulse, the probability is that pus has been formed. By this time the spasmodically-contracted muscles have become tired and a lump may be felt in the right iliac region. At times the tumor may be felt at the first visit. The size of this tumor bears, as a rule, no relation to the length of time since the last attack, nor always to the severity of the symptoms in that attack. It may have existed for months and yet be no larger than a lemon, or, it may have existed only for weeks and be as

large as an adult head. If pus has formed there is always a septic temperature and the pulse is disturbed. When pus has formed, operation affords the only means of relief. At times small amounts of pus may be absorbed. However, the general rule is that, once pus has formed, rupture will inevitably take place sooner or later into the peritoneal cavity, or some of the hollow viscera, unless operation is done. The disappearance of the tumor is nearly always a bad sign. For the moment, the patient may have a sense of relief from the feeling of discomfort in the lower right abdomen, but tympanites soon follows and general peritonitis closes the scene. An appendiceal abscess may point on the skin and Nature cure the patient by this means. It is usually easier, however, for the pus to force its way into the peritoneal cavity. In one case, seen some years ago, drainage of a very large abscess was difficult, because the collection of pus extended down around the rectum. Septic pneumonia developed and the patient died. It seems probable that in these cases the abscess should be opened through the rectum, as this furnishes much better opportunity for thorough drainage.

Removal of Appendix.—Whenever it is possible the appendix should be removed at the time of operation. Especially is this true when there have been several recurring attacks of appendicitis. If the removal of the appendix requires considerable manipulation and the breaking up of many adhesions, it seems better merely to open the abscess at the time of the acute attack and to leave the removal of the appendix until a later operation can be done. This is, of course, a disputed question. There are good operators who insist that the appendix can always be found at the time of the primary operation and that its removal guarantees against recurrences. To leave the appendix, they say, invites recurrence. At times, when the appendicular abscess is small, there seems to be no reason to doubt that pus is absorbed. In some cases, in which there has been an acute attack with some septic temperature and pulse indicating the presence of pus and the acute symptoms have subsided under ordinary medical treatment, a later operation may show the presence of very little pus, practically none. In a recent case Dr. Guiteras found just a drop of greyish pus in a patient whose symptoms indicated some time before the existence of a considerable septic focus. The size of the tumor is not always an indication of the amount of pus. Its hardness may at times give rise to the suspicion of the presence of a sarcoma. In a recent case in which sarcoma had been diagnosed by others who saw the case previously, abnormalities of temperature seemed to point to a purulent condition. When the tumor was cut down upon dense tissues were found surrounding a small quantity of pus, not more than two or three drams.

Fallibility of McBurney's Point.—In the dis-

cussion Dr. Egbert H. Grandin said that recent experience has shown him that it seems to be a mistake to lay so much stress on the diagnostic value of McBurney's point. Localized pain and tenderness at that point often appear only at an advanced stage of the disease. If the general practitioner waits until these symptoms are present, and this he has been taught to do, his patient will often come to the surgeon too late. McBurney's point is of value, but it is not pathognomonic and tenderness in that spot does not exclude the existence of certain other pathological conditions. In two recent cases of extrauterine pregnancy, under Dr. Grandin's care, there was distinct tenderness over McBurney's point. As a matter of fact, pain at this point is rather uncommon in an early stage of appendicitis. Pain occurs first at and around the umbilicus. It may often be referred to up under the liver, and therefore there is a suspicion of the presence of gall-stones. If the abscess exists behind the cecum the pain may be much farther back. When the appendix points downward from the cecum the pain may be much lower than McBurney's point. Appendicular abscess between the uterus and the bladder may give symptoms that simulate a number of gynecological conditions and the pain will be referred to the pelvic region. It must be remembered that appendicular abscesses lying close to the vagina may be readily opened and thoroughly drained through this canal.

Primary Operation Technic.—The less done beyond draining and washing out a large appendicular abscess, the better for the patient. The possibilities for harm; if adhesions are broken down and pus gains admittance to the general peritoneal cavity, can scarcely be overestimated. During the course of the drainage the appendix will often slough off and come away with the pus. This is as effectual as if it were painfully searched for and picked out of the adhesions in which it so often lies buried. When these adhesions are thick and considerable manipulations are needed to free the appendix, there is risk of rupturing the wall—a frequently-fatal accident. In many cases counter-drainage into the loin is extremely important. In women it is often feasible to make the counter-drainage through the vagina.

Removal of Appendix.—Dr. William B. Coley said that there is great difference of opinion, among those having the largest experience in the matter, as to whether the appendix should always be removed at the primary operation. Dr. John Deaver says that the appendix should always be removed. This is certainly good surgery in his skilful hands. But if followed as a general rule, the advice would be productive of many fatal results. If after a moderate search the appendix can be found, its removal is advisable. The patient's condition is of importance in this matter. If he is able to stand manipulation well, a longer search may be made. There is no doubt that the appendix

often sloughs off and comes away during the drainage. It does not always do this, however. Dr. Coley has seen a secondary appendicitis in a case in which the patient had been assured that the appendix had sloughed off and come away during a preceding surgical treatment for appendicitis. A good many patients have recurrences if the appendix is left. Hernia often follows the use of free drainage. In such patients secondary operation should be advised for the removal of the appendix and also for the radical cure of the hernia.

Iodine-Test for Pus.—Dr. Theodore Dunham said that his experience in the use of iodine for the staining of the white blood-cells seems to show that this test is of some value in deciding the presence or absence of pus. The leucocytosis in a case of appendicitis, if high, often makes the presence of pus absolutely certain. When, however, the leucocytosis is not sufficiently high to make assured differentiation between a purulent and a non-purulent condition, the iodine reaction may serve to confirm the diagnosis of the presence of pus. In a case of suspected abscess of the liver in a boy, Dr. Dunham was encouraged to operate because of the presence of the iodine reaction. Up to this the patient had been treated for typhoid fever. The liver was found to be swollen and an incision into it gave exit to a quantity of pus, after which the patient made a prompt recovery.

Leucocytosis in Appendicitis.—Dr. Potter said that a review of eighty cases of chronic appendicitis examined during the interval showed that while leucocytosis as a test for the presence of pus is of some value, it is not finally significative. Like every other single symptom—pain, fever, pulse—it is valuable confirmatory sign, but gives no absolute assurance. As one of a set of symptoms it adds considerably to the surgeon's assurance in a given case, but is not pathognomonic.

Dr. E. K. Dunham said that he was very much interested in the report of certain cases in which gas, as well as pus, was present. The bacillus *aerogenes capsulatus* is an almost constant inhabitant of the intestinal tract. It is from here, of course, that the bacteria find their way into the appendix, and it would be interesting to know how often these bacteria occur in the abscess and how often gas occurs in connection with appendiceal pus.

Dr. Edward M. Foote said that a recent remark from our friends the osteopaths with regard to the leucocytosis of appendicitis seemed of special interest, because of its supreme assumption. The osteopath by manipulation sets the spleen in vibration. This is claimed to cause the outwandering of a great many leucocytes into the circulation, and thus cures the infective process which is at work—according to the osteopath.

Value of McBurney's Sign.—Dr. John B. Walker said that McBurney's sign is not of ab-

solute, but of relative diagnostic value in cases of appendicitis. When a collection of pus is retro-cecal then tenderness is not apt to exist at McBurney's point at all. The pain and tenderness are apt to be much more diffuse and there is usually very little tenderness in the center of the patient's abdomen. In these cases, too, the pulse and temperature are apt not to be so high as in other cases in which the abscess wall is so situated with regard to the general peritoneal cavity that there is opportunity for the absorption of more purulent toxins. There is no doubt that extra-uterine pregnancy simulates appendicitis by causing pain and tenderness in the region near McBurney's point. Abscess of the ovary may also produce pain and tenderness here as in a recent case under Dr. Walker's care. There are certain cases of appendicitis in which the pain occurs first in the epigastrium. At the beginning of the attack this is not very intense, but it may become very severe. In a recent case it was thought that rupture of the stomach or duodenum had taken place. Operation, however, revealed a gangrenous appendicitis. McBurney's symptom has its value, but must not be considered either pathognomonic or exclusive in its significance.

Dr. Reynold Wilcox said that the diagnostic significance of McBurney's sign is much overrated. In many cases it is useless and worse than useless. Its absence tempts the general practitioner to delay his diagnosis of appendicitis until the case has perhaps gone beyond the stage in which surgical intervention would be of benefit. In general it is a criterion that can not be depended on and of which too much has been made by text books and lecturers.

The True McBurney Sign.—Dr. W. B. Coley said it must be remembered that the symptom to which Dr. McBurney called attention is not pain but tenderness at a point midway between the umbilicus and the anterior superior spine. This sign is of very positive value as an element in diagnosis. It must not be considered the sole pathognomonic symptom, nor is its presence a sure indication that the underlying pathological condition is appendicitis. Taken in connection with other symptoms, however, it is a very valuable diagnostic factor. Tubal and ovarian disease especially may simulate the tenderness which occurs at McBurney's point so characteristically in the majority of appendix cases. As a rule, however, it is not difficult to differentiate these conditions from appendicitis at times when surgical intervention is not insistently called for and at other times the indications for surgical procedure retains its value.

Difficulties of Technic.—Dr. Ramon Gutieras said that at times considerable hemorrhage occurs from the walls of the incision made for opening an appendiceal abscess. This hemorrhage comes from branches of the circumflex iliac artery which occasionally runs across the field of operation. The ends of the cut artery

should be caught as soon as its presence is noted and the ends either twisted, or, if necessary, a ligature applied. Extensive manipulation for the purpose of securing the appendix may easily lead to the opening of the general peritoneal cavity. Therefore it scarcely seems advisable, especially in cases of extensive abscess, or when the appendix can not readily be found.

Such a search involves much more risk for the patient than the presence of his appendix. There is no doubt that the appendix often sloughs away, for portions of it are not infrequently found in the drainage from the abscess. The direction in which the appendix points depends on the length and character of its mesenteric attachments. In perfectly normal individuals the appendix may point in any direction. As a general rule, however, it points toward the umbilicus and in all these cases ulceration in its neighborhood will cause pain and tenderness at McBurney's point.

Difficulties of Drainage.—In certain cases the cecum becomes pressed up beneath the incision and so prevents proper drainage. In these cases means must be taken to keep the cecum out of the way. If the cecum should become distended with gas, even to a slight extent, as happens not infrequently during convalescence from appendicitis operations, it will usually close up the drainage canal. It is advisable in some of these cases to insert a Mercier catheter in order to maintain drainage.

Dr. Lincoln reported a case of appendicitis in which the pain and tenderness and the tendency to abscess formation were found to be in the region of the kidney on the right side. This caused serious doubt as to the diagnosis. At the operation it was found that the cecum occupied a position just over the kidney as it does in fetal life. It was evident that by some error of development the cecum had never descended to its proper position, but maintained its original location.

Stated Meeting, Held January 25, 1901.

The President, John B. Walker, M.D., in the Chair.

Intestinal Plug.—Dr. Edward M. Foote presented an intestinal plug meant to be worn by patients who have an artificial anus. It consists of a solid plug of gutta-percha, about two inches and a half long and about three-fourths of an inch in diameter, surrounded by a rubber cushion in the shape of a ring containing air. This can be worn without any inconvenience. Its insertion in the rubber ring makes it reasonably capable of retaining all fecal material unless this be of very watery consistency, while at the same time it yields to every motion of the patient and can be worn without discomfort. It may be removed every four hours or so and the artificial anus thoroughly cleansed. Dr.

Foote also exhibited a sigmoidoscope and a small electric lamp which could be used for its illumination. The electric battery for this lamp can easily be carried in the pocket. This enables one to make high examinations of the rectum and even of the beginning of the sigmoid at a patient's home without any necessity for transporting very cumbersome and expensive apparatus.

Obstruction from Enterolith.—Dr. Howard Lilienthal reported the following case: The patient, an old lady sixty-four years of age, was taken with severe abdominal pains after a Thanksgiving dinner. The pain was general in character and could not be localized distinctly. It grew worse and uncontrollable vomiting finally set in. There was more resistance to palpation and more tenderness in the right iliac region. Considerable tympanites developed and an operation seemed absolutely indicated. Exploratory laparotomy was advised. As soon as the abdominal muscles became relaxed a tumor in the region of the appendix could be made out. Appendicitis had been suspected before and now this diagnosis seemed confirmed. An incision was made as for the removal of the appendix. Adhesions were found to exist between the loops of the intestine and the cecum in this region and considerable free peritoneal fluid escaped through the incision. The cecum itself was found unaffected by any pathological condition in it, but the ileum not very far from its anastomosis with the large intestine contained a hard lump. This lump caused occlusion of the intestine so completely that below it the ileum was absolutely flaccid while above the intestine was immensely distended. An incision was made in the wall of the ileum and a stone over an inch in diameter was removed. Rapid recovery took place after the operation and no sequelæ of the condition have been noted.

Origin of Enterolith.—As is usual in the case of enteroliths this one seems to have been originally a gall-stone. The most careful investigation into the woman's history, however, fails to reveal any evidence of pain or fever, or jaundice, or intestinal disturbance, or even discomfort in the liver region, any time during life. This stone still bears on it a certain number of facets which show that it was not the only stone in the gall-bladder at the time that it was passed to the intestine. The passage of stones of such large size from the gall-bladder to the intestine without any symptoms remains one of the mysteries of intestinal pathology.

Resection of Epididymus.—With the idea of relieving a condition of sterility which had existed for some time, Dr. Lilienthal did a resection of the vas deferens and a transplantation from their point of origin to another part of the testicle. The patient was a man of forty who was normally fertile up to a year or two ago. Examination showed the presence of a series of nodules in the epididymus. These were considered to be tuberculous in origin. Seminal fluid

expressed from the seminal vesicles contained no spermatazoa. Samples of seminal fluid from the condom also showed the absence of zoosperms. With the idea of relieving the condition by an experimental operation, the vas deferens was opened and found to be perfectly free. A filiform could be passed into the seminal vesicles. An incision made into the globus minor of the epididymus with the expression of some fluid for microscopic examination seemed to show that there were no spermatazoa in this part of the genital apparatus. Some were found, however, to exist in the globus major. The vas deferens was then split and fastened by stitches to an incised portion of the globus major. The patient was able to leave the hospital in two weeks. So far there has been no opportunity of judging of his fertility. Spermatazoa have not been found in the seminal fluid. This is the first time that such an operation has been done, though its performance was suggested in White & Martin's Text Book on Venereal Diseases.

Gonorrheal Sterility.—Dr. Follen Cabot said that Dr. Lilienthal's operation opens up a vista of hope for gonorrheal patients who have suffered from double epididymitis. As is well known the inflammatory exudate in these cases completely closes the seminal ducts and as a rule the closure is permanent. This makes the patient absolutely sterile. As the patients are usually young men a condemnation to hopeless sterility through life makes an extremely sad condition. Therefore the possibility of relieving the sterility by the transplantation of the vas deferens opens up a new and very promising operative field in genito-urinary surgery. There seems no good reason why the operation should not be successful and Dr. Lilienthal's case will certainly be followed with a great deal of interest by genito-urinary surgeons throughout the country.

Torticollis Simulating Vertebral Dislocation.—Dr. Royal Whitman described a case which had recently been shown at one of the surgical societies as presenting a fracture or dislocation of the atlas or axis. The patient, a young man, was struck very severely on the jaw by a piece of wood in the hands of a drunken man. The resultant injury healed without much delay and the patient seemed to have completely recovered. Some weeks afterward a queer projection of bone was noticed at the back of the neck and a marked deformity of the head and neck resulted. It was concluded that a fracture of some of the cervical vertebræ existed. An X-ray photograph was taken and, while a fracture of the vertebræ could not be demonstrated, some disturbance of the relations of the atlas to the axis was found to exist. The condition was accompanied by intense muscular spasm which did not follow the accident immediately, but first began to develop more than a week later. The case proved to be one of simple torticollis in which the spasm of the muscles of the back of the neck caused the disturbance of the bony re-

lations and the projection which simulated fracture or dislocation.

Orthopedic Treatment.—The patient was fitted with a jury-mast and the deformity was at once lessened. In a short time the pain also was relieved. It is not usually realized that severe torticollis may give rise to the deformity that occurred in this case. It is only when parts of the bones are emphasized by displacement due to spasmodic muscular action that it is realized how large the cervical vertebræ really are. These cases have become familiar to orthopedists in recent years, though they are still often sent to dispensaries or to specialists by the general practitioner with the idea that some serious pathological condition exists in the bones at the back of the neck. It is interesting to note that in this case a goiter has begun to develop. The spasm of the muscles forced the chin down upon the chest, thus interfering with the circulation to the thyroid gland and very possibly causing irritation to the tissue-element within the gland.

Spinal Cocainization in Selected Cases.—Dr. Gibson said that he had recently had a case in which the production of general anesthesia by the ordinary means seemed especially contraindicated. The patient was suffering from diabetic gangrene and amputation at the thigh was required for the condition. He was an elderly man with seriously-diseased kidneys and arteriosclerotic arteries. In general he was in as unsuitable a condition for anesthesia and operation as Dr. Gibson had ever seen. One-fifth of a grain of cocaine in a two-per-cent. solution was injected into the spinal canal. Absolute anesthesia resulted almost immediately and lasted, according to observations made, an hour and a half. The operation was terminated absolutely without pain in about half an hour. There was no nausea or head symptoms and no toxic reaction of any kind. The patient was given thirty grains of bromide, three hours before the operation to quiet restlessness and $\frac{1}{150}$ of a grain of hyoscin at the time of the operation. He left the hospital two weeks later with the stump firmly healed. One single rise of temperature occurred during the convalescence and this was due to a sore throat. This is one of the cases that one can not help but feel would surely have been "wiped out" by general anesthesia.

Favorable Experience.—Dr. Green said that in a recent case he had seen two injections of one-third of a grain each made into the spinal canal in order to produce anesthesia. The first injection produced anesthesia only to the knee. The second gave anesthesia well up to the thorax. In this case a fistula extending well up into the rectum was thoroughly opened. The patient was found to be suffering also from hemorrhoids and these were removed by the clamp and cautery. The operations lasted more than an hour altogether and good anesthesia was maintained during the whole time. Fourteen cases have been operated on under anesthesia by spinal cocainization in the City Hospital. There

has not been a single bad result of any kind. A number of operators are persuaded that in certain cases operation would surely have proved fatal had it been attempted under general anesthesia. Spinal cocainization seems destined to take its place as a distinct adjuvant to surgery in certain difficult cases in which general anesthesia is contra-indicated.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 7, 1901.

The President, Robert F. Weir, M.D., in the Chair.

Bust of Dr. Horace Green.—A bust of the late Dr. Horace Green made under the direction of Dr. Green's family, was presented to the Academy by Dr. D. B. St. John Roosa. Dr. Roosa said in part: The community at large is hardly aware of the debt of gratitude which they owe the physician. When, some time ago, a set of judges was picked out to decide the names which should be inscribed in the Hall of Fame that is now being built on one of the hills around New York, not one doctor was selected for a place on the Committee. The first fifty names that are to be inscribed on this roll of fame have been selected and there is not a single physician among them. Is it possible that the name of Ephraim McDowell, whose pioneer work in gynecology saved thousands of lives and untold human suffering, does not deserve a place on a roll of America's famous men? Is Marion Sims to be left out? Shall Morton, who discovered anesthesia, made modern surgery possible, and saved such a world of suffering to mankind, have no place? Do such men sink in importance below the inventors of sewing machines, the writers of literary essays, or the makers of political speeches? If the public neglects, at least brother doctors must not forget. Fame is empty at best.

"Can storied urn, or animated bust

Back to its mansion call the fleeting breath?

Can honor's voice provoke the silent dust,

Or flattery soothe the dull, cold ear of death?"

Dr. Green conferred a great benefit on the medical profession by his ground-breaking work in laryngology. Before the invention of the laryngoscope he divined conditions that existed as the basis of symptoms, succeeded in getting hints of confirmation even with the imperfect examination methods of his day, and laid the basis of scientific laryngology. He was far ahead of his time and was naturally misunderstood. His work met with great opposition, and his methods were decried and even his motives impugned at a stormy meeting of the Academy. While a deeply sensitive man, kindly and sympathetic, he was yet one of the strong characters that goes on with appointed work despite opposition. It is but proper, therefore, that we should have this memorial of him and we owe a debt of gratitude to the friends

who have presented it. May it long prove a source of inspiration to the members of the Academy and to the medical profession in New York in its noble work for the relief of disease and suffering.

The scientific business of the evening was then taken up—the meeting of the Section on Obstetrics and Gynecology before the Academy. This consisted of a symposium on the subject of "Conservative Operations upon the Uterine Appendages."

Present Status.—Dr. J. Riddle Goffe said that when modern gynecology began to be extensively practised about fifteen years ago, the desire to operate carried the gynecologists too far. They removed tissues that were scarcely at all diseased, and sometimes even normal sexual organs were sacrificed in the hope that this would afford relief from reflex symptoms. After this stage the pendulum swung the other way, and of late it has seemed that too little removal of diseased tissue has been undertaken. There is a true conservatism that takes the middle path between the two extremes. When organs are slightly diseased only portions of them should be removed; they may be freed from constricting adhesions, they may be replaced in their proper position, and in general the patient's condition can be vastly improved without radical operation.

Technic of Conservative Operation.—The simplest method of doing conservative work is to open the posterior vaginal fornix. In this way adhesions may be broken up and drainage secured that will relieve most symptoms. In acute cases relief is afforded almost at once. In chronic cases improvement results especially from the better circulation that comes with freedom from adhesions. After this, if further operation seems necessary, a portion of the ovary may be removed, or degenerated cysts in the body of the ovary may be punctured. Puncture may be done with a tenaculum, or with a knife or scissors. Some operators always prefer the actual cautery. Others think that when the cautery is used the extent of damage done to ovarian tissue cannot be properly gauged. If part of the ovary is hopelessly diseased, it may be removed. The inflammatory reaction that results from operation on the ovary proves a source of stimulation to the remainder of the organ and instead of doing harm does good.

Ovarian Circulation.—Professor Clark of the University of Pennsylvania recently showed that the circulation of the ovary is marvelously well arranged, so as to furnish nutrition even to the smallest healthy portion of the organ, whenever the blood-supply to other parts is cut off. The ovarian artery does not go directly to the ovary, but to the uterus. From it a series of arterial arches penetrate the substance of the ovary, anastomosing very freely with each other in every part of the organ. The removal of any one part, therefore, does not interfere with the circulation of other parts. Usually the part of the ovary that has to be removed is that farthest distant from the hilum. It is at the periphery that exsection is easiest and

surest of success. After the exsection the cut portion is well covered with peritoneum and all rough surfaces are turned in so as to avoid the formation of adhesions. No matter where the incision is made the blood-supply will prove sufficient.

Tubal Operations.—There is for the tube the same arrangement of mesentery and of blood-supply as for the bowel. The blood-supply in the mesosalpinx can be quilted off without fear of producing gangrene in the portions of the tube that may be left. If it is the distal end of the tube that is affected it may be amputated. The tube should be slightly split at the cut end and then its mucous lining stitched to the peritoneum, as is done in circumcision, this keeps the tube open, makes the original caliber of the tube large at the end, and provides an oval opening into which the ova may find their way from the ovary and thus prevent absolute sterility. It is not always the distal end of the tube that is affected. Sometimes the purulent collection is walled off by adhesions in the uterine end of the tube, or is limited to the central portion. If the fimbriated end of the tube seems unaffected it may be preserved and inserted into the horn of the uterus, thus conserving fertility.

Transplantation of Ovary.—This operation has been undertaken with the idea of securing the preservation of the menstrual function and avoiding the shock of its sudden stoppage. This precocious menopause often proves a severe strain on the nervous system. The explanation of the fact that menstruation sometimes continues after a double ovariectomy seems to be that some small portion of the ovarian tissue has been left and that this suffices to produce the nervous reflexes that originate the menstrual flow. This explanation seems much more probable than that of the existence of a problematic third ovary. Ovarian tissue when transplanted to another site often recovers its circulation and produces the usual reflex of the normal organ. The performance of this operation is thoroughly justified and there are possibilities in the way of subsequent fertility. The success of transplantation of ovarian tissue has given rise to the idea of transplanting the ovary of one woman into another. This has been done recently with a certain amount of success. No cases of pregnancy have occurred as yet, but it remains to be seen whether this procedure may not be justified even by the hopeful tinge that it gives to a young woman's life that is otherwise sexually eclipsed.

Gynecological Conservatism.—Dr. W. M. Polk said that conservatism in surgery has become the keynote of modern advance. Gynecology is not behind her sister specialties in the matter of the preservation of all useful tissues. It is the fear that one may be trifling with the life of a patient rather than any overweening desire for the removal of tissue, that prompts the want of conservatism on the part of gynecologists. After all, life is preferable to any mere function of life. Radical operations, however, have not always given the relief from symptoms that was promised. The

important thing to know is what are the proper limits of conservatism. The destruction of the tissues in the pelvis, as everywhere else, is proportionate to the virulence of the infection. There are two principal infectious factors—sepsis and specific infection. Under sepsis is included all the pathological processes which follow conception and parturition. The main specific infection is of gonorrheal origin. In any case an early outlet for the products of infectious processes mitigates the damage done. Hence the first step in conservative gynecology is free incision of the cul-de-sac of Douglas, thus affording a vent for infectious products and drainage that prevents further accumulation. If this were done early enough it would preserve pelvic tissues from ultimate destruction.

Accessory Operations.—If in infectious processes in the pelvis a large flabby uterus is found this will be benefited by the thorough application of the curette. In pyosalpinx the process is always a prolonged one. Usually patients do not come to the surgeon until the condition has been going on for several months. If the case comes early enough amputation may prove successful in completely removing the focus of infection. Of course the virulence of the infection is important. Muco-pus may be allowed to take care of itself. Pus will require, however, thorough drainage and the prognosis of ultimate success in securing function of the tube is dubious. The treatment of cysts constitutes an important problem. Some cysts will take on pathological development that will require subsequent operation. Most of them will remain absolutely without producing any untoward effect.

Age Limit of Conservative Operations.—When there is any hesitation conservatism should be the rule unless the patient is near the age limit, that is, over forty-two. The sexual function is extremely important for the happiness of the individual and especially for those in contact with her. This gynecologists and neurologists are in a position to know better than anyone else. Relief is not always afforded by radical operation and when even a portion of the ovary remains there is always the hope of maternity to brighten the life of the patient. This justifies plastic operations upon the ovaries and tubes. Success in this line will lift from gynecology the stigma under which it has so long labored of doing mutilating, rather than helpful work.

The Immediate and Remote Results of 156 Cases of Conservative Operations Upon the Uterine Appendages.—This was the title of a paper read by Dr. W. L. Burrage of Boston, Mass. This paper will appear in a subsequent issue of the MEDICAL NEWS.

Conservative Surgery in 182 Cases.—Dr. A. P. Dudley of New York detailed his experience in 182 cases. Six of them he did not consider conservative when done, but the menses have continued and the operation, therefore, was as radical as was intended. Dr. Dudley considers that there is much more danger in conservatism

than in routine radical gynecology. The surgeon is often called upon to decide on the spur of the moment as to whether he has to deal with a septic or a non-virulent condition and on this decision may depend the life of the patient. The circulation has all to do with the success of conservative operations. This is usually interfered with by the pathological process which has been at work. Conservative surgery, far from increasing the circulatory interference, rather lessens it. In so important an organ as the ovary Nature can be trusted to restore the circulation, if she be but given half a show. Operation often helps her in this.

Cystic Ovaries.—Dr. Dudley prefers not to use the cautery in opening cysts of the ovary, although it is used extensively in France and Germany. There seems no doubt that it is more effective than simple puncture in preventing the recurrence of the cysts. How far the action of the heat destroys tissues beyond the points of actual contact is not known. There is no doubt that the cautery destroys many ova that lie around the cyst. This is an important consideration in conservative gynecology. There is no doubt in Dr. Dudley's mind that tubes once closed may become patent again. Years ago he used strong silk to tie off a tube and in a subsequent operation, months after, finding the silk still present he removed it. The patient's other tube had been removed and when some months later she became pregnant there was no doubt that the first tube, though crushed by the ligature, had yet somehow become open again. The tube is assisted in preserving its lumen free by the diaphragmatic suction action which draws liquid from the abdominal cavity into the tube. This suction action of diaphragmatic motion is not generally understood. Any operator who opens an abdominal cavity a few days before menstruation is due will find in it a couple of ounces of bloody serum. This is pumped out during the menstruation through the tube, by the action of the diaphragm. This serum will not be found to occur in the abdomen after menstruation.

BOOK REVIEWS.

A TEXT-BOOK OF PATHOLOGY. By ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia Hospital. Third Edition. 1900. W. B. Saunders & Company, Philadelphia and London.

CONSIDERABLE diversity of opinion will exist for some time yet among both pathologists and clinical teachers as to the best point of view from which to present the subject of pathology to students of medicine. Some, particularly the more philosophical of pathologists, mindful alone of the theme as biological, will pass rather lightly by the morpho-

logical aspects to lay stress upon some of the large and far-reaching fundamentals governing cellular activity. To them the problems of disease present themselves as the physiology of cell life in the broadest sense. Another group of writers, looking at pathology from a wholly different aspect, has endeavored to correlate from the aspect of practice the morphologic findings of the autopsy with the clinical features of disease. For our own part the former alone embodies the true science of the subject, and the ideal will only find realization along these paths of interpretation. From this ground no book of pathology has been yet attempted; gleanings of this attitude are only derived now and then in monographic discussions. But it is to be hoped that the near future may number among its best scientific achievements just such a product of a newer outlook.

Of those books based on the traditional lines of treatment Dr. Stengel's book has been accepted as ranking among the best, especially in so far as the wants of most students and practitioners have been anticipated. Pathology is here the story of the physician of a younger generation. Beginning with the subject of causes, in a general way, to their general expressions, physiological and morphological, the author then takes up that great series of changes designated as inflammation. Here we confess disappointment. Inflammation has been so intelligently presented from the comparative viewpoint of the biological pathologist by Professor Adami in Allbutt's *System of Medicine* that the very inconsequential description of this theme here is a keen disappointment. The wide significance of inflammation is too important to be lightly dealt with; after all it constitutes the greater part of disease processes.

The general excellence of the section on bacteria will be appreciated by many. The classification of Migula has been followed. A few slips scarcely noteworthy enough to be mentioned have been detected here and there. Thus Koch is stated to have discovered the tubercle bacillus in 1880; as a matter of fact this investigator's first announcement was made before the Physiological Society of Berlin on March 24th, 1882. Other errors might be pointed out, but are really too subordinate to detract from the favorable impression on reading this section. In Part II. the special pathology is discussed; the accounts of the lesions are short and usually to the point. The revision of the sections on neuropathology has been carried out with uniform success by Dr. Joseph Sailer. On the whole this has been found sound and consistent. The mechanical part of the book is excellent.

As a book for undergraduate students or physicians at large Dr. Stengel's work will be found a safe and generally reliable guide to pathological morphology.

ENTEROCYCLYSIS, HYPODERMOCYCLYSIS AND INFUSION. By ROBERT COLEMAN KEMP, M.D., New York. James T. Dougherty, New York.

It is being recognized more clearly every year that the practitioner has a ready means of influenc-

ing diseased conditions in modifying the composition of the blood by the introduction of a diluent into the circulation. The rationale, the methods and the objects to be gained are all well discussed in this excellent small manual.

There has been a need for such a treatise and the present one can be commended as pertinent and as practical. The chapters on Intestinal Irrigation are of special interest, as are also those dealing with the application of dry heat or cold in the rectum.

Dr. R. H. Dawbarn of New York has contributed able chapters on Shock and Its Treatment and Anesthesia and Its Relations to Shock. For the many inquirers as to the proper procedures to be followed in the application of carbonated baths (Nauheim at Home) the very excellent chapter in Dr. Kemp's book will suffice.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Embracing the Entire Range of Scientific and Practical Medicine and Allied Sciences. By Various Writers. A New Edition, Completely Revised and Rewritten. Edited by ALBERT H. BUEB, M.D., New York City. Vol. I., Aac-Bla. William Wood & Company.

MEDICAL science is to be enriched by a second edition of this excellent work. It would be an impossibility to point out the various excellent features of this new revision, for in every sense of the word it is a revision, thoroughly modern and for the most part rewritten from the standpoint of the medicine of the last decade of the twentieth century. The work, moreover, is better illustrated than the first edition.

The work is a veritable *index-verum* of medicine and should enjoy a wide sale.

A MANUAL OF SYPHILIS AND THE VENEREAL DISEASES. By JAMES NEVINS HYDE, A.M., M.D., and FRANK HUGH MONTGOMERY, M.D. Second Edition. W. B. Saunders & Company, Philadelphia.

In this, the second, edition of this excellent manual the reviewer is forcibly and favorably impressed with the wealth of illustration, when compared with the earlier edition. This increased illustrative feature, in a work which is so markedly descriptive, gives it at once a value to the practitioner which no amount of descriptive language could impart. With it as a guide there is no excuse for the confounding of the venereal disorders which are distinctive. It would be too much to hope that any work could make the practitioner infallible, but it may be said that this volume presents very attractive and praiseworthy features.

TWENTIETH CENTURY PRACTICE. Edited by Thomas L. Stedman, M.D., of New York. Vol. XX. Tuberculosis, Yellow Fever and Miscellaneous. William Wood & Company.

WITH this volume Dr. Stedman has brought to a successful termination his monumental task of giving the American medical public its first extensive series of monographic treatises which are not system translations. Apart from all other considera-

tions the editor is to be congratulated on the good work accomplished.

This present volume is intrinsically an interesting one. The subject of tuberculosis alone makes it an important volume in the series. The opening chapter, on the Bacteriology, Pathology and Etiology of Tuberculosis, by Dr. A. J. Lartigau, for conciseness, logical mode of treatment and pedagogic application, is one of the best known to us, and much the same praise is to be bestowed on the chapter by Dr. S. A. Knopf on the Diagnosis, Prognosis, Prophylaxis and Treatment. On the contrary, however, the articles on Yellow Fever and on Mushroom Poisoning are inadequate, and far from modern. The chapter on diseases of the Uvula, Fauces, etc., by Dr. J. E. Newcomb, and that on the Mental and Neural Diseases of Children are excellent.

PRACTICAL GYNECOLOGY. A Comprehensive Text-book for Students and Physicians. By Dr. E. E. MONTGOMERY, Professor of Gynecology, Jefferson Medical College. P. Blakiston's Son & Co., Philadelphia.

Of the making of books there is no end, but if they were all as good as this one the reviewer would derive much pleasure from his onerous duties.

It is practically impossible to give the necessary space in our columns in order that a correct appreciation of the volume before us might be given, but it may be said in short that we believe this to be one of the very best treatises of its kind. It is not a small book; there are 800 pages, and hence it cannot be slipped in the pocket for ready reference, but we believe that it is an invaluable work for every practitioner who is trying to perfect himself in gynecological work, both diagnostic and operative.

The work is beautifully illustrated, largely from half-tone plates of photographs of the actual conditions, and the generally recognized high class work of the publisher needs no comment.

DISEASES OF THE NERVOUS SYSTEM. A Text-Book for Students and Practitioners of Medicine. By H. OPPENHEIM, M.D., Professor at the University of Berlin. Authorized Translation by EDWARD E. MAYER, A.M., M.D. J. B. Lippincott Company.

To neurologists Oppenheim's treatise is favorably and extensively known, and non-German-reading practitioners may be assured in finding this work thoroughly modern and valuable. It does not depart in its general scope from many of the more recent text-books on the subject, but it bears throughout the impress of the author's rich personal experience. Perhaps the most important advance that is to be noted in Oppenheim's book is the frank admission of a section on diseases of the sympathetic nervous system. While such a recognition is not a new conception, he has, perhaps, extended the lines more widely than other writers known to the English-speaking readers. For this alone, the work is especially valuable.